

Narrow Range Expansion

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Volatility Breakout (Price Action)

TIMEFRAME

H1 – D1 (any)

WEBSITE

www.algotbot.live

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Overview

Narrow Range Expansion is a pure price-action breakout Expert Advisor — it uses **no indicators at all**. It is built on the classic volatility-cycle observation behind the NR7 setup: markets alternate between *coiling* (low-volatility, range-contracting) phases and *expanding* (trending) phases. When a single bar prints the smallest high-to-low range of the last several completed bars, it marks a coil where directional energy is being stored — and a sharp move often follows.

The EA treats that narrow-range bar's high and low as a **breakout fence**. For a short confirmation window it watches for the first bar that *closes* beyond the fence (plus a small buffer). A close above the fence triggers a long; a close below triggers a short. Because risk is read directly from the coil — the narrow bar's own range — the entire system stays price-action only, with no lagging indicator inputs. Every calculation runs on a single timeframe (the chart the EA is attached to).

Core idea: a small bar = stored energy. The narrower the coil relative to recent bars, the cleaner the breakout fence. Trade the first decisive close out of the fence, and size the stop from the coil itself rather than from an arbitrary indicator.

How It Works

1. Detecting the coil (the narrow-range bar)

On every completed bar the EA measures that bar's range ($\text{High} - \text{Low}$) and compares it against the previous `RangeLookback` bars. If the most recently completed bar has a *strictly* smaller range than every one of those prior bars, it qualifies as a fresh narrow-range (NR) coil bar. (An earlier bar that is equal-or-narrower disqualifies the setup, so only a genuinely new contraction arms a trade.)

2. Arming the breakout fence

When a coil bar is found, the EA records its **High**, **Low**, and **range**. The High and Low become the breakout fence; the range becomes the unit of risk. The setup is now "armed" and the confirmation window begins.

3. The confirmation window

For up to `MaxWaitBars` completed bars after the coil, the EA waits for a decisive breakout close. To filter out marginal pokes through the fence, the close must clear the fence by a buffer equal to `BreakoutBufferPct × coil range`:

- **Long signal:** a bar closes *above* `fenceHigh + buffer`.
- **Short signal:** a bar closes *below* `fenceLow - buffer`.

If neither side breaks within the window, the coil is considered stale and abandoned — no trade is taken. The setup is also discarded the moment a breakout fires, so the EA never re-triggers off the same coil.

4. Entry

On a confirmed breakout, and only if no position is already open under this EA's magic number, a market order is sent in the breakout direction:

- **Long** — market **Buy** at the Ask.
- **Short** — market **Sell** at the Bid.

5. Stop loss & take profit

Risk is sized directly from the coil. The stop distance is `StopRangeMult × coil range`, and the take-profit distance is a reward-to-risk multiple of that stop:

```
risk = StopRangeMult × coilRange
```

```
Long : SL = entry - risk          TP = entry + RewardRiskRatio × risk
```

```
Short: SL = entry + risk          TP = entry - RewardRiskRatio × risk
```

Stop-loss and take-profit levels are attached to the order at entry, so the position is fully bracketed from the moment it opens. With the default `RewardRiskRatio` of 2.0, every trade targets twice its risk.

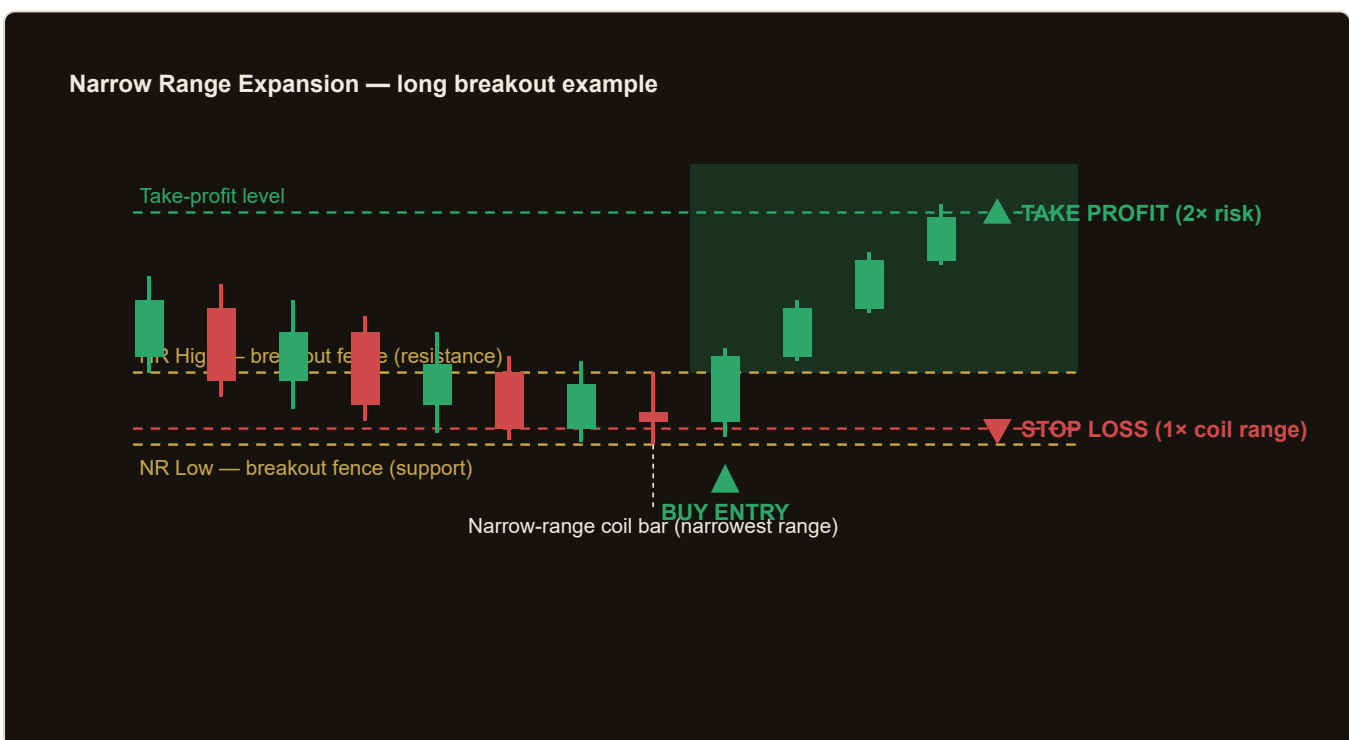
6. Position management

- **One position at a time:** a new breakout is ignored while a position under the same magic number is still open.
- **Bar-close logic only:** all detection runs once per completed bar via new-bar detection — intrabar ticks never trigger entries.
- **No trailing or scaling:** each trade simply runs to its fixed stop or target.

Why measure risk from the coil? A tight coil means a small range, which means a tight stop — so position risk automatically scales down in quiet conditions and up after wider bars, without any volatility indicator.

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	7	Number of completed bars the coil bar must be the narrowest of. The classic NR7 value is 7. Range 3–20, step 1.
MaxWaitBars	3	How many bars after the coil the EA keeps watching for a breakout close before abandoning the setup. Range 1–10, step 1.
BreakoutBufferPct	0.10	Breakout filter: the close must clear the fence by this fraction of the coil range. Higher values demand a more decisive break. Range 0.0–1.0, step 0.05.
StopRangeMult	1.0	Stop distance expressed as this many coil ranges from the entry price. Range 0.5–3.0, step 0.5.
RewardRiskRatio	2.0	Take-profit distance as a reward-to-risk multiple of the stop distance. Range 1.0–5.0, step 0.5.
Lots	0.10	Fixed order volume in lots. Range 0.01–1.0, step 0.05.
Magic	7707	Magic number identifying this EA's positions, so it manages only its own trades and enforces one position at a time.

Recommended Settings

The narrow-range concept originated on the daily chart (NR7) but the EA works on any single timeframe. Higher timeframes produce fewer but cleaner coils; intraday timeframes produce more frequent setups with more noise.

- **Timeframe:** H1 to D1. Start on H1 or H4 for liquid instruments; use D1 to mirror the original NR7 study.
- **Instruments:** liquid major FX pairs (e.g. EUR/USD, GBP/USD) and major indices, where contraction-then-expansion cycles are well behaved.
- **Lookback:** keep `RangeLookback` at 7 for the textbook setup; raise it to 10–14 to demand a rarer, tighter coil.
- **Confirmation:** `MaxWaitBars` of 2–3 keeps entries close to the coil; a larger value tolerates slower breakouts but risks chasing.
- **Buffer:** a `BreakoutBufferPct` of 0.10–0.25 filters out marginal fence pokes on noisier instruments.
- **Risk:** the default `StopRangeMult` 1.0 with `RewardRiskRatio` 2.0 gives a balanced 1:2 risk-to-reward profile.

Example — default H1 long breakout

On EUR/USD H1 the last 7 bars contract, and the newest bar prints the smallest range of the group: High 1.08650, Low 1.08450 (coil range 20 pips). The fence is armed. With `BreakoutBufferPct` 0.10 the buffer is 2 pips. Two bars later a candle closes at 1.08700 — above $1.08650 + 2$ pips — so the EA buys at the Ask. With `StopRangeMult` 1.0 the stop is 20 pips below entry, and with `RewardRiskRatio` 2.0 the target is 40 pips above. If price had instead closed below 1.08430 first, it would have sold short with the mirror-image stop and target.

Tip: always run a fresh optimisation and walk-forward test on your chosen symbol and timeframe before going live. Coil frequency and breakout follow-through differ markedly across instruments and sessions.

How to Install on MetaTrader 5

- 1 Copy `NarrowRangeExpansion.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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