

Directional Triangle Breakout

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Chart-Pattern Breakout

TIMEFRAME

H1 – H4 (chart-selected)

WEBSITE

www.algobot.live

⚠ Important Disclaimer This document is for educational and informational purposes only. It does not constitute financial or investment advice. Trading forex, CFDs, and other leveraged instruments involves substantial risk of loss and is not suitable for all investors. Past backtest performance does not guarantee future results. Never trade with capital you cannot afford to lose.

Overview

Directional Triangle Breakout is a pure price-action geometry system built on the two classic *directional* chart patterns: the **ascending triangle** and the **descending triangle**. Unlike the many symmetric "squeeze / coil / apex" breakout systems — which are direction-agnostic and simply wait for volatility to expand either way — a triangle carries an *intrinsic directional bias* baked into its geometry. One boundary is a firm horizontal price shelf; the other is a crowd steadily paying up (or selling down) into it. That imbalance tells the EA which way to lean *before* the break happens.

The strategy measures the triangle by fitting least-squares regression lines to the recent bar **highs** and **lows**, normalising both slopes by ATR (so the thresholds are scale-free, expressed in ATR-per-bar), and confirming that the range is genuinely **converging**. It then *arms* a single side and waits for a completed bar to **close beyond the flat shelf** by a small ATR buffer before entering — filtering out the many failed pokes that plague naive breakout entries.

The core idea: A triangle records an ongoing order-flow imbalance. When the flat shelf finally gives way, the trapped side capitulates and the pent-up flow releases in the *pre-signalled* direction. Entering only on a confirmed close through the shelf converts that structural bias into a timed, risk-defined trade.

How It Works

1. Measuring the triangle geometry

On each newly completed bar, the EA looks back over the last `Lookback` bars that *precede* the candidate breakout bar (the "pattern window"). Within that window it computes:

- **slopeH** — the least-squares slope of the bar **highs**, divided by ATR → the tilt of the top boundary in ATR-per-bar.
- **slopeL** — the least-squares slope of the bar **lows**, divided by ATR → the tilt of the bottom boundary in ATR-per-bar.
- **Convergence gate** — the high-low range of the *recent half* of the window must be no wider than the *earlier half* multiplied by `ConvergeRatio`. This enforces that the band is actually narrowing toward an apex, not just drifting.

2. Classifying the pattern & arming a side

ATR-normalising the slopes lets the same fixed thresholds work on any symbol or timeframe:

- **Ascending triangle (bullish):** the top is roughly *flat* (`|slopeH| ≤ FlatSlopeMax`) while the bottom is *rising* (`slopeL ≥ RiseSlopeMin`). Buyers keep lifting the lows into a fixed supply shelf → pressure is expected to resolve **up**.
- **Descending triangle (bearish):** the bottom is roughly *flat* (`|slopeL| ≤ FlatSlopeMax`) while the top is *falling* (`slopeH ≤ -RiseSlopeMin`). Sellers keep pressing the highs into a fixed demand shelf → pressure is expected to resolve **down**.

The flat **shelf** is defined by the pattern window itself, not by the breakout bar: `resistance` = the highest high, `support` = the lowest low of the window. Because it is fixed *before* the break, a break through it is genuinely fresh.

3. Entry — confirmed close through the shelf

The pattern only *arms* a side. The EA acts on the first completed bar whose close clears the shelf by an ATR buffer:

```
LONG   when ascending is armed AND   Close > resistance + BreakBuffer × ATR
SHORT  when descending is armed AND   Close < support    - BreakBuffer × ATR
```

Requiring a *closing* break (not just an intrabar spike) beyond a small buffer is what filters the many failed pokes into the shelf.

4. Exits — ATR bracket + failed-breakout flatten

Every position is protected by two mechanisms:

- **ATR stop & ATR target (asymmetric):** on entry the EA places a hard stop at $\text{AtrStopMult} \times \text{ATR}$ and a target at $\text{AtrTargetMult} \times \text{ATR}$ from fill price. With the defaults (1.5 / 2.5) this is a favourable ~1 : 1.67 risk-to-reward bracket.
- **Failed-breakout exit:** if a later completed bar closes back *through* the broken shelf by $\text{FailBackMult} \times \text{ATR}$ (a long that drops back below resistance, or a short that pops back above support), the break is judged rejected and the position is flattened early — before the stop is reached.

Worked example — ascending triangle, EUR/USD H1

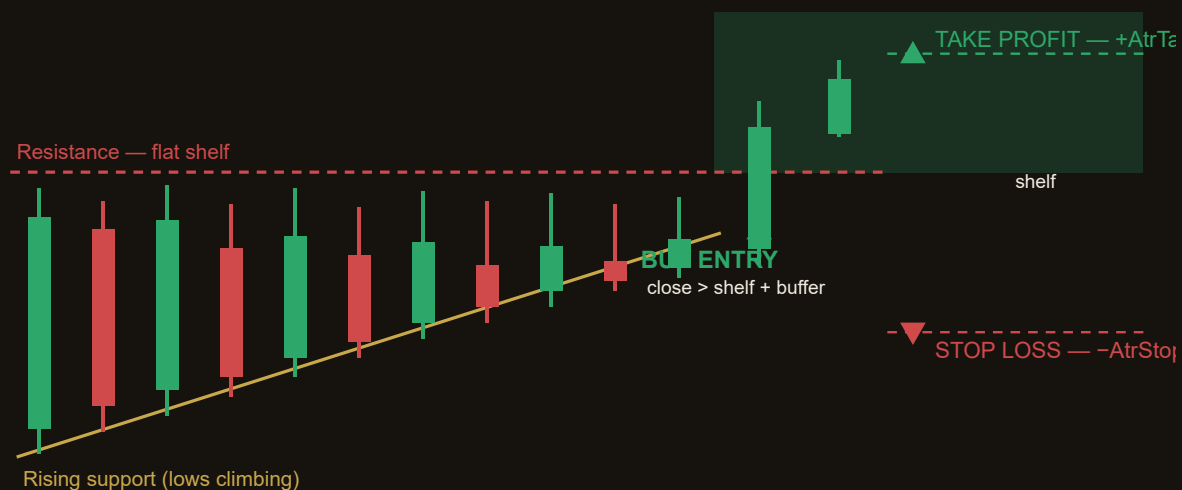
Over the last 20 bars the highs hover flat around 1.0850 ($\text{slopeH} \approx 0.03 \text{ ATR/bar}$, within FlatSlopeMax) while the lows climb steadily ($\text{slopeL} \approx 0.09 \text{ ATR/bar}$, above RiseSlopeMin), and the recent-half range is $0.68\times$ the earlier-half range — convergence confirmed. $\text{ATR} = 0.0012$. The next bar closes at 1.08655, above resistance $1.0850 + 0.10 \times 0.0012 \approx 1.08512$. The EA buys at the Ask, sets a stop at fill $- 1.5 \times \text{ATR}$ (≈ 18 pips) and a target at fill $+ 2.5 \times \text{ATR}$ (≈ 30 pips). If a later bar instead closed back below $1.0850 - 0.50 \times 0.0012 \approx 1.08440$, the trade would be flattened as a failed breakout.

Position management & timeframe

The EA holds **one position per magic number** at a time — while a trade is open it only manages the failed-breakout exit and does not look for new setups. New-bar detection ensures each completed bar is evaluated exactly once. Every price and indicator read uses the chart's own symbol and timeframe (_Symbol / _Period), so the strategy runs on whatever timeframe you attach it to.

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.



Converging range → apex → confirmed close-through break resolves UP

Illustrative example only. Actual market behaviour varies.

Parameters

Parameter	Default	Description
Lookback	20	Number of bars used to measure the triangle geometry — the flat shelf and the converging side (range 10–60, step 2).
FlatSlopeMax	0.08	Maximum slope of the FLAT boundary, in ATR-per-bar. Smaller = flatter, stricter shelf (range 0.02–0.30, step 0.02).
RiseSlopeMin	0.06	Minimum slope of the CONVERGING boundary, in ATR-per-bar. Steeper = clearer directional bias (range 0.01–0.30, step 0.01).
ConvergeRatio	0.75	Convergence gate: the recent-half high-low range must be $\leq$ the earlier-half range $\times$ this value (range 0.40–1.00, step 0.05).
BreakBuffer	0.10	Breakout confirmation buffer beyond the shelf, in ATR. The close must clear the shelf by this margin (range 0.00–0.60, step 0.05).
FailBackMult	0.50	Failed-breakout exit: a completed bar closing back through the shelf by this $\times$ ATR flattens the trade (range 0.10–1.50, step 0.10).
AtrPeriod	14	ATR averaging period used for slope normalisation and the protective stop / target (range 7–30, step 1).
AtrStopMult	1.5	ATR multiplier for the protective stop-loss distance from entry (range 1.0–4.0, step 0.5).
AtrTargetMult	2.5	ATR multiplier for the take-profit target distance from entry (range 1.0–6.0, step 0.5).
Lots	0.10	Fixed order volume in lots for each trade (range 0.01–1.0, step 0.05).
Magic	5309	Magic number identifying this EA's positions, so it manages only its own trades (one position per magic at a time).

Recommended Settings

The strategy is timeframe-agnostic — it attaches to whatever chart it runs on — but converging triangles are cleanest and most reliable on intermediate horizons where noise is filtered yet patterns still complete regularly.

SUGGESTED STARTING POINT

- **Symbols:** liquid majors such as EUR/USD, GBP/USD, USD/JPY, or gold (XAU/USD), where triangle patterns form with clean shelves.
- **Timeframe:** **H1** or **H4** for a good balance of setup frequency and pattern quality. Lower timeframes produce more (but noisier) triangles.
- **Lookback:** keep near the default of 20 on H1; consider 24–30 on H4 to span a fuller pattern.
- **Risk bracket:** the default 1.5 / 2.5 ATR stop/target keeps a positive reward-to-risk profile. Widen `AtrStopMult` on high-volatility instruments to avoid premature stop-outs.

Tuning tip: `FlatSlopeMax` and `RiseSlopeMin` define how "textbook" a triangle must be. Tightening `FlatSlopeMax` (e.g. 0.05) and raising `RiseSlopeMin` (e.g. 0.10) yields fewer but higher-conviction setups; loosening them arms more patterns at the cost of precision. Lowering `ConvergeRatio` demands a more visibly narrowing coil.

Note: Because only one position is held per magic number, the EA never pyramids. If a breakout fails and is flattened, it is immediately free to re-arm on the next qualifying pattern.

How to Install on MetaTrader 5

- 1 Copy `DirectionalTriangleBreakout.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

Before going live: Always validate settings in the MT5 *Strategy Tester* on your broker's historical data for the exact symbol and timeframe you intend to trade. Confirm spreads, ATR scale, and the failed-breakout exit behave as expected before committing real capital.

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.