

Median Line Fork Reversion

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Mean Reversion

TIMEFRAME

Any (single timeframe)

WEBSITE

www.algobot.live

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Overview

Median Line Fork Reversion is a mean-reversion Expert Advisor built on Alan Andrews' median-line — the classic "pitchfork" — geometry. Instead of the horizontal rails of a Donchian channel or the least-squares fit of a regression channel, this strategy defines a *sloped* channel from three discrete swing pivots and fades price from the channel's outer rails ("tines") back toward its centre line.

The idea rests on Andrews' well-known "80% rule": after price reacts away from a well-formed median line, it tends to return to that line the large majority of the time. The EA continuously rebuilds the fork as new pivots confirm, waits for a rejection of one of the outer tines, and then trades back toward the centre median — using that median line itself as a dynamic take-profit target.

The strategy is fully symmetric: it takes both **long** fades off the lower tine and **short** fades off the upper tine. Risk is controlled with an ATR-based protective stop, a minimum-room filter that skips channels too thin to be worth trading, a staleness guard that ignores forks whose pivots are ancient, and a one-position-per-magic rule.

Core intuition. A median line is drawn from an anchor pivot through the midpoint of the most recent reaction swing. Two parallel tines pass through the reaction extremes, and — by construction — the median always sits exactly halfway between them. That makes it a naturally balanced reversion target whether price is fading down from the top rail or bouncing up from the bottom rail.

How It Works

1. Detecting swing pivots (ZigZag)

A ZigZag of alternating swing highs and lows is maintained using a **fractal pivot test**. A bar qualifies as a pivot when it is the strict High (swing high) or strict Low (swing low) of the `±PivotLookback` window of bars around it. Because confirmation requires `PivotLookback` bars on *each* side, every pivot is only recognised after it is fully formed, so no pivot ever repaints.

Confirmed pivots are folded into an alternating sequence:

- A **same-type** pivot (e.g. a new swing high after an existing swing high) *replaces* the last pivot if it is more extreme, extending the swing.
- An **opposite-type** pivot is *appended*, guaranteeing the sequence always alternates high / low / high.

2. Building the median-line fork

The three most recent alternating pivots are labelled **P0** (oldest anchor), **P1**, and **P2** (the latest reaction). The fork is constructed as follows:

```
M      = midpoint of the P1-P2 segment  (index & price averaged)
slope  = (M.price - P0.price) / (M.index - P0.index)

median = P0.price + slope * (now - P0.index)    // centre line
tineA  = P1.price + slope * (now - P1.index)    // rail through P1
tineB  = P2.price + slope * (now - P2.index)    // rail through P2
upperTine = max(tineA, tineB)
lowerTine = min(tineA, tineB)
```

The median line originates at P0 and runs through the midpoint of the P1–P2 reaction. The two tines are parallel to it and pass through P1 and P2 respectively. Projected forward to the current bar, they give an **upper rail**, a **lower rail**, and a **centre median** target.

3. Entry logic

Signals are evaluated only on the close of a completed bar (new-bar detection), never intrabar. Both directions require the just-completed bar to reject a rail and close *against* it relative to the prior close:

- **Long entry:** the completed bar sags to or below the **lower tine** (`close ≤ lowerTine`) and closes back *up* versus the prior close (`close > prior close`), with the median a worthwhile distance above the market (`median > ask + minRoom`). Buy at the ask, targeting the median line.
- **Short entry:** the completed bar pushes to or above the **upper tine** (`close ≥ upperTine`) and closes back *down* versus the prior close (`close < prior close`), with the median a worthwhile distance below the market (`median < bid - minRoom`). Sell at the bid, targeting the median line.

4. Exit logic — stop loss & take profit

- **Take profit** is the *dynamic median line* projected to the entry bar — the natural reversion target. This is submitted as the order's TP.
- **Stop loss** is placed $\text{AtrStopMult} \times \text{ATR}$ beyond the entry price (below entry for longs, above entry for shorts), giving the trade room against normal noise while capping the loss.

5. Trade filters

- **Minimum-room filter:** the channel must be at least $0.5 \times \text{ATR}$ wide ($\text{upperTime} - \text{lowerTime} \geq 0.5 \cdot \text{ATR}$); thinner forks are skipped as not worth fading. The same `minRoom` is required as clearance between the market and the median target.
- **Staleness guard:** a fork is rejected once its newest pivot P2 is older than `MaxForkAge` bars, so the EA never fades geometry built on ancient swings.
- **Alternation check:** P0, P1, and P2 must strictly zigzag (alternate high/low); otherwise no fork is built.
- **One position per magic:** only a single position per magic number is open at any time.

Note. The ATR used for both the stop distance and the minimum-room filter is computed over `AtrPeriod` bars. All bar, indicator, and price reads use the primary symbol and the timeframe the EA is attached to, so the strategy adapts to whatever timeframe you choose at attach time.

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.

Walk-through of the long setup above

Three alternating pivots (P0 low, P1 high, P2 low) define an ascending fork. Price sags into the lower tine and the signal candle closes back up versus the prior close inside the rejection zone — a valid long. The EA buys at the ask with a stop $\text{AtrStopMult} \times \text{ATR}$ below entry and a take-profit sitting on the centre median line. Price reverts up to the median and the trade is closed. A short setup is the mirror image: a rejection of the upper tine that closes back down, targeting the median from above.

Parameters

Parameter	Default	Description
PivotLookback	3	Fractal half-width for swing-pivot detection — the number of bars required on each side of a candidate pivot. Larger values yield fewer, more significant pivots. Range 2–8, step 1.
AtrPeriod	14	ATR length used both for the protective-stop distance and the minimum-room filter. Range 7–30, step 1.
AtrStopMult	1.5	Protective-stop multiplier. Stop = entry $\mp$ <code>AtrStopMult</code> $\times$ ATR. Range 0.5–4.0, step 0.25.
MaxForkAge	120	Staleness guard. A fork whose newest pivot is older than this many bars is not faded. Range 20–400, step 20.
Lots	0.10	Fixed order volume in lots. Range 0.01–1.0, step 0.05.
Magic	4027	Magic number identifying this EA's positions. Used to enforce the one-position-per-magic rule.

Recommended Settings

The EA is timeframe-agnostic — it runs on whatever chart timeframe it is attached to. As a starting point for optimisation and forward testing:

- **Instruments:** liquid FX majors (e.g. EUR/USD, GBP/USD, USD/JPY) where median-line geometry tends to be respected.
- **Timeframe:** M30 to H4. Higher timeframes produce cleaner, more meaningful pivots; lower timeframes generate more signals but more noise.
- **PivotLookback:** keep at 3 for a balance of responsiveness and pivot quality; raise to 4–5 on lower timeframes to filter noise.
- **AtrStopMult:** 1.5 is a reasonable default. Widen toward 2.0–2.5 on more volatile instruments to avoid being stopped by normal excursions.
- **MaxForkAge:** 120 bars suits mid timeframes; reduce it if you only want to trade freshly-formed forks.

Tip. Because the take-profit is the median line rather than a fixed distance, the effective reward-to-risk ratio of each trade depends on how far the rail sits from the centre. The `0.5  $\times$  ATR` minimum-room filter already discards the flattest setups; tightening it further (in code) trades fewer but higher-quality fades.

Optimisation caution. Fitting parameters too tightly to historical data ("curve fitting") often produces settings that look excellent in backtests but fail live. Always validate on out-of-sample data and forward test on a demo account before risking capital.

How to Install on MetaTrader 5

- 1 Copy `MedianLineForkReversion.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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