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Mean Crossing Cadence Regime

Expert Advisor Documentation

PLATFORM	TYPE	TIMEFRAME	WEBSITE
MetaTrader 5 (MT5)	Regime-Switching (Adaptive)	M5 – H1 (adaptive)	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

Mean Crossing Cadence Regime is an original, first-principles regime-switching Expert Advisor. It deliberately uses *no* named indicator, chart pattern, support/resistance level, or published method (no SMC, ICT, Wyckoff, or similar). Its entire engine rests on a single raw statistic borrowed from signal-processing level-crossing theory — Rice's formula — applied directly to the close series.

The idea is simple. Take the last `N` closed closes and subtract their arithmetic mean **μ**. What remains is a zero-mean oscillation, $d^i = close^i - \mu$. Rice's level-crossing result says that, for a stationary process, the expected number of times such a signal crosses zero per unit time is proportional to its *dominant frequency*. In plain language: **counting how often price crosses its own local mean is a model-free readout of how fast the market is oscillating right now.**

That single count, normalised, becomes the cadence statistic:

$$\kappa = (\#\text{ sign changes of } d^i \text{ over the window}) / (N - 1) \qquad \kappa \in [0, 1]$$

The same number κ both selects the playbook and lets price's position relative to the mean choose the direction — one statistic, fully self-arbitrating:

- **κ HIGH** — price flips from one side of the mean to the other constantly. This is a high-frequency, **mean-reverting** regime. Large deviations are transient and snap back, so the EA **fades** the stretch, targeting the mean itself.
- **κ LOW** — price parks on one side of its mean for long stretches. This is a low-frequency, **persistent / trending** regime. Here a fresh crossing of the mean is the ignition of a new one-sided leg, so the EA **follows** that crossing.

> **Why mean-absolute-deviation (MAD)?** Deviations are measured in units of the window's mean-absolute-deviation, `MAD = mean(|d^i|)` — a robust dispersion that makes no Gaussian assumption (unlike a std-dev z-score). The fade trigger `z = d_now / MAD` is therefore dimensionless and adapts automatically as volatility breathes. Stops and targets, separately, scale with ATR.

How It Works

1. The cadence statistic κ

On every newly-closed primary-timeframe bar, the EA takes the most recent `LookbackN` closed closes, computes their mean **μ**, and walks the window chronologically counting sign changes of $d^i = close^i - \mu$. Dividing that count by `(N - 1)` gives κ ∈ [0, 1]. A dead-flat window (MAD = 0) is skipped entirely.

2. Regime selection

A single comparison splits the world in two:

- `κ ≥ CadenceThreshold` → **RANGE** (mean-reverting) regime
- `κ < CadenceThreshold` → **TREND** (persistent) regime

3. Range regime — fade to the mean

In a mean-reverting regime the EA fades an over-stretched deviation, using the mean as a magnet target. The dimensionless stretch is `z = d_now / MAD`:

- `z ≥ +EntryZ` — price is over-stretched *above* the mean → **SELL**, take-profit at the mean μ, stop-loss `ATR × AtrStopMult` above entry.
- `z ≤ -EntryZ` — price is over-stretched *below* the mean → **BUY**, take-profit at the mean μ, stop-loss `ATR × AtrStopMult` below entry.

A minimum reward:risk filter rejects fades whose mean target is already too close to justify the ATR stop: the trade is only sent when `reward / risk ≥ MinRewardRisk`.

4. Trend regime — follow a fresh crossing

In a persistent regime, a fresh crossing of the mean marks the ignition of a new one-sided leg, and the EA follows it:

- `d_prev < 0` and `d_now > 0` — price just crossed *up* through the mean → **BUY**.
- `d_prev > 0` and `d_now < 0` — price just crossed *down* through the mean → **SELL**.

Trend entries take a fixed ATR-based target, `TrendTpMult × ATR` beyond entry, with the same `ATR × AtrStopMult` protective stop.

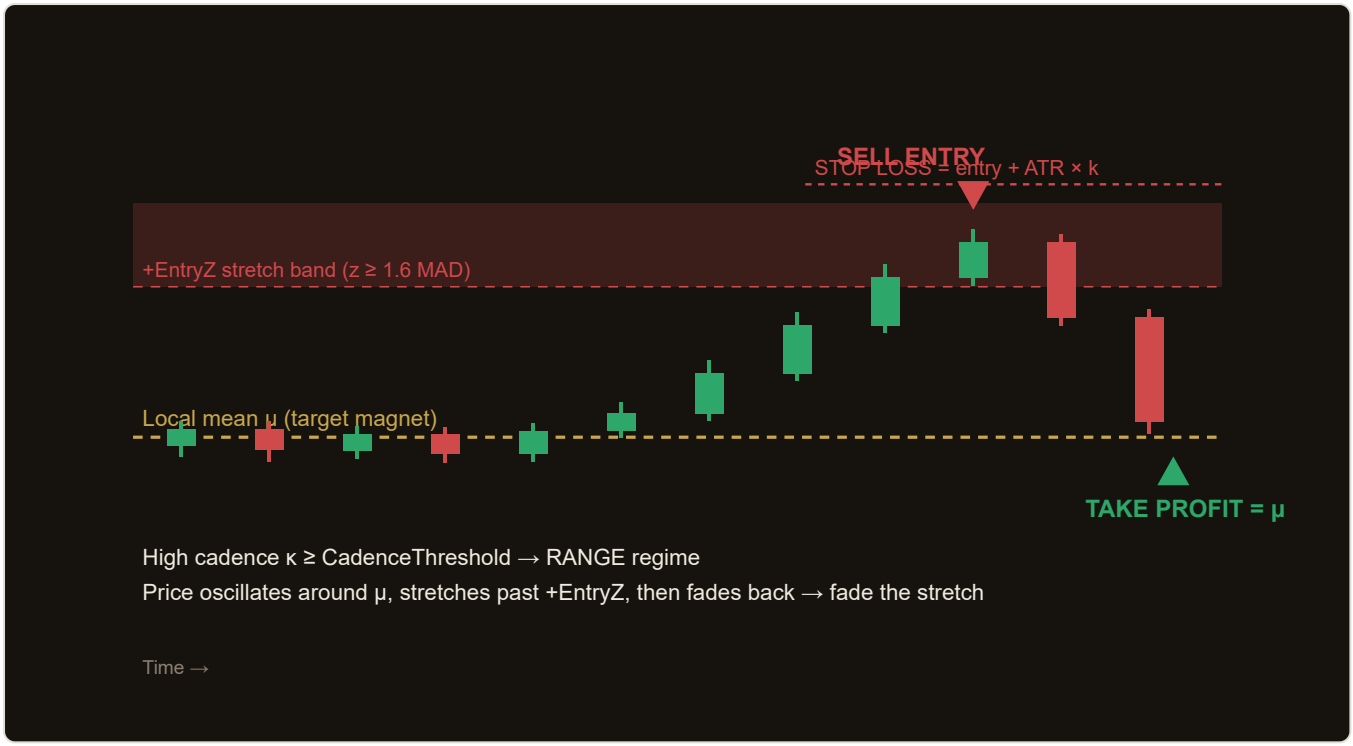
5. Exits, position management & filters

- **One position per magic.** Only a single open position is allowed at a time; the broker-side SL/TP manage every exit — there is no separate trailing or close logic.
- **Stops & targets in ATR.** Volatility is measured with an ATR of period `AtrPeriod` on the closed bar; the stop distance is `AtrStopMult × ATR`.
- **New-bar gate.** The logic runs once per newly-closed primary bar, not on every tick.
- **Spread filter.** New entries are skipped whenever the current spread exceeds `MaxSpreadPoints` points.

> **Timeframe-agnostic.** The strategy locks to no timeframe — it runs on whatever chart period it is attached to at run time. It was designed with FX majors and metals on M5–H1 in mind, but works on any liquid symbol.

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. It depicts the **range (mean-reverting) regime**: a high cadence κ while price oscillates tightly around its local mean, then a stretch beyond `+EntryZ` that is faded short, with the mean as the take-profit magnet.



Illustrative example only. Actual market behaviour varies.

Parameters

Parameter	Default	Description
LookbackN	`40`	Window of closed bars over which the mean μ and the crossing cadence κ are measured. Range 15–90, step 5.
CadenceThreshold	`0.35`	Regime split: κ at/above this is mean-reverting (fade); below is trending (follow). Range 0.15–0.60, step 0.05.
EntryZ	`1.6`	Fade trigger — the deviation `|close − mean|` must exceed this many mean-absolute-deviation (MAD) units. Range 0.8–3.0, step 0.1.
AtrPeriod	`14`	ATR lookback used as the volatility yardstick for stops and trend targets. Range 5–30, step 1.
AtrStopMult	`2.0`	Stop-loss distance as a multiple of ATR. Range 0.5–4.0, step 0.1.
TrendTpMult	`2.5`	Trend-regime take-profit distance (× ATR) beyond entry. Range 0.5–5.0, step 0.1.
MinRewardRisk	`0.7`	Rejects fades whose mean target is closer than this multiple of the ATR stop distance. Range 0.3–3.0, step 0.1.
MaxSpreadPoints	`60`	Skip new entries when the current spread (points) exceeds this value. Range 5–300, step 5.
Lots	`0.10`	Fixed lot size per trade. Range 0.01–1.0, step 0.05.
Magic	`5417`	Magic number identifying this EA's positions. Range 0–9,999,999, step 1.

Recommended Settings

The defaults are a balanced starting point for FX majors and metals on intraday timeframes. Because the cadence statistic κ and the MAD-scaled trigger are both self-normalising, the EA adapts across instruments without hand-tuning — but the parameters below are the ones most worth reviewing per symbol.

Suggested baseline

- **Symbols:**

  Liquid FX majors (EURUSD, GBPUSD, USDJPY) and metals (XAUUSD).
- **Timeframe:**

  M5 to H1 — the strategy runs on whatever period the chart uses.
- **LookbackN:**

  40 (shorter for faster reversion, longer for smoother regime detection).
- **CadenceThreshold:**

  0.35 — raise it to spend more time in the trend-following playbook, lower it to fade more often.
- **MaxSpreadPoints:**

  Tune to your broker; keep it tight on majors, looser on metals.

Tip: `CadenceThreshold` is the single most influential knob — it decides how much of the time the EA fades versus follows. Backtest it across a small grid (0.25–0.45) on your target symbol before committing, and always validate on out-of-sample data.

Position sizing: `Lots` is a fixed volume — there is no equity-based money management built in. Size it relative to your account balance and the ATR-scaled stop distance, and never risk more than a small fraction of equity per trade.

How to Install on MetaTrader 5

1. Copy `MeanCrossingCadenceRegime.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

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.