

BullTrading

INDICATOR LIBRARY

KAMA Pro

v1.0

自适应趋势参考

Adaptive Trend Reference

标准 KAMA / Standard KAMA

BullTrading 自适应 / BullTrading Adaptive

CONCEPT VISUAL

使用说明书

USER GUIDE / v1.0

一条趋势参考线，两种自适应模式。

One trend reference line. Two adaptive modes.

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1. 快速开始 / Quick Start

BullTrading KAMA Pro v1.0 用一条自适应平滑线展示价格路径。可选择「标准 KAMA / Standard KAMA」或「BullTrading 自适应 / BullTrading Adaptive」。线色描述方向与平缓程度；本版没有多空信号、云带、面板或警报。

BullTrading KAMA Pro v1.0 shows the price path through one adaptive smoothing line. Choose Standard KAMA or BullTrading Adaptive. Color describes direction and flatness; this edition has no long/short signals, bands, dashboard, or alerts.

正式发布后，在 TradingView 指标列表中查找 BullTrading KAMA Pro v1.0，选择对应指标并添加到标准蜡烛图。若已收藏，可从收藏列表添加。

After publication, find **BullTrading KAMA Pro v1.0** in TradingView's indicator list and add the matching indicator to a standard candlestick chart. If already saved, add it from your favorites.

若持有源码，也可在 Pine 编辑器新建指标，粘贴完整代码，保存后添加。首次保持默认参数，并加载足够历史。默认预热至少 100 根连续有效数据，期间隐藏线条。设置中中英同屏显示。

Source holders may instead create an indicator in the Pine Editor, paste the complete code, save, and add it. Start with defaults and enough history. The line stays hidden during warmup, requiring at least 100 consecutive valid bars by default. Settings show Chinese and English together.

2. 理解两种模式 / Understand the Two Modes

共同使用效率比 ER：观察窗内价格的绝对净位移，除以逐根绝对变动之和。ER 限制在 0~1；分母为零时取 0。接近 1 表示路径较接近单向移动，接近 0 表示净位移较小。ER 不是胜率。

Both modes use ER: absolute net price displacement divided by the sum of absolute bar-to-bar changes over the observation window. ER is bounded to 0-1, with 0 for a zero denominator. Near 1 means a more direct path; near 0 means small net displacement. ER is not win probability.

标准 KAMA / Standard KAMA

默认模式采用 Perry J. Kaufman 的 KAMA 方法，结合路径效率调整平滑响应。「快速长度」和「慢速长度」控制其响应范围，只在此模式生效。

The default mode uses Perry J. Kaufman's KAMA method, adjusting smoothing response with path efficiency. Fast Length and Slow Length control its response range and apply only in this mode.

BullTrading 自适应 / BullTrading Adaptive

结合 ER 路径效率与 John F. Ehlers 方法中的相位变化，形成另一种自适应响应。标准快慢长度在此模式不生效。ER=0 时线值暂停更新，ER 恢复后继续。

This mode combines ER path efficiency with phase changes from John F. Ehlers' approach to create a different adaptive response. Standard fast/slow lengths do not apply. **At ER=0, the line holds its value until ER recovers.**

两种模式都用于观察价格路径，其响应方式不同；不承诺某一模式始终更快、更平滑或更好。

Both modes help observe the price path, with different response behavior. Neither is promised to be consistently faster, smoother, or better.

3. 参数速查 / Parameter Reference

长度单位为当前图表 K 线根数。快速长度必须小于慢速长度，这项校验只在标准模式启用。

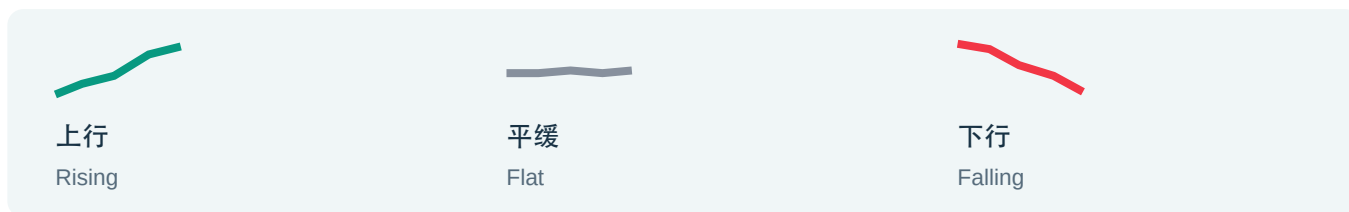
Lengths are measured in bars of the current chart. Fast Length must be below Slow Length; this check applies only in Standard KAMA.

参数 Parameter	默认 Default	范围与用途 Range & Use
算法模式 Algorithm	标准 KAMA Standard KAMA	标准或自适应 Standard or Adaptive
价格源 Source	close	价格序列，如 hl2 Price series, e.g. hl2
ER 观察长度 ER Length	20	2-500；效率观察窗 ER window
最少预热根数 Minimum Warmup Bars	100	50-2000；显示前预热 Display warmup
快速长度 Fast Length	2	1-100；仅标准 Standard only
慢速长度 Slow Length	30	2-1000；仅标准 Standard only
ATR 长度 ATR Length	14	1-500；斜率归一化 Normalize slope
斜率跨度 Slope Lookback	3	1-100；线值比较跨度 Line comparison span
平缓阈值 Flat Threshold (ATR)	0.02	0-5；只改着色 Color only
仅显示已收盘值 Closed-Bar Values Only	开 On	未收盘时保持前柱 Hold prior closed bar
线宽 Line Width	3	1-5
上行颜色 Rising Color	#089981	可自定义 Customizable
下行颜色 Falling Color	#F23645	可自定义 Customizable
平缓颜色 Flat Color	#87909D	可自定义 Customizable

实际预热取四者最大值：预热设置、ER长度+1、ATR长度+1、斜率跨度+1。ATR 使用图表 OHLC，即使价格源另选 hl2 或其他序列也一样。

Required warmup is the maximum of the warmup setting, ER Length+1, ATR Length+1, and Slope Lookback+1. ATR uses chart OHLC even when another source, such as hl2, is selected.

4. 读懂线与颜色 / Read the Line and Its Color



线色依据 $D = (\text{本根线值} - \text{跨度前线值}) / \text{ATR}$ 。默认跨度 3： $D > 0.02$ 为上行色， $D < -0.02$ 为下行色，其余为平缓色，等于阈值也归平缓。这是整个跨度的总变化，不是每根平均变化。ATR 为零时使用平缓色。

Color uses $D = (\text{Line} - \text{Line}[\text{Lookback}]) / \text{ATR}$. With the default lookback of 3, $D > 0.02$ is rising, $D < -0.02$ is falling, and all other values - including threshold equality - are flat. **This is total change across the span, not average change per bar.** Zero ATR uses the flat color.

ATR、斜率跨度和平缓阈值影响颜色分类，不改变平滑公式；较长观察窗可能增加显示所需预热。提高平缓阈值会扩大灰色范围，线的位置保持不变。

ATR, slope lookback, and flat threshold affect color classification, not the smoothing formula; longer windows may increase display warmup. Raising the flat threshold widens the gray range without moving the line.

三个观察步骤 / Three Observation Steps

- 方向：**连续看几根线的弯曲和颜色，而非只看一次变色。例如线仍抬升但转灰，表示当前跨度的变化进入平缓区间，不必然表示反转。
- 位置：**观察价格在线上、线下或附近。价格回到线附近时，记录停留、穿越或重新远离；触碰不证明支撑阻力成立，远离也不代表必然回归。
- 尺度：**同品种可对照 15 分钟和 1 小时等周期。短周期反复穿线、长周期仍有方向可以同时成立。脚本只计算当前周期，未内置跨周期确认。

- Direction:** Follow curvature and color over several bars. A still-rising line turning gray means its lookback change entered the flat range; it does not establish a reversal.
- Position:** Observe price above, below, or near the line. Near it, note whether price stays, crosses, or moves away. A touch does not establish support or resistance; distance does not guarantee reversion.
- Scale:** Compare the same asset on timeframes such as 15 minutes and 1 hour. Repeated short-term crossings can coexist with a directional longer-term line. The script uses only the current timeframe, without built-in multi-timeframe confirmation.

5. 收盘显示与数据边界 / Closed Bars and Data Boundaries

上一根已收盘

Previous close

形成已确认值

Confirmed value

当前柱形成中

Current bar open

保持上一根值与颜色

Hold prior value and color

当前柱收盘

Current bar closes

更新为本根完成值

Show this bar's final values

默认开启「仅显示已收盘值」：当前柱未收盘时，显示上一根已收盘的线值和颜色；当前柱收盘后，立即改用该柱完成值。历史柱使用各自的完成值，不是把全部曲线向后移一根。关闭后，当前线值和颜色随盘中行情变化。[Pine 柱状态说明](#)。

With Closed-Bar Values Only enabled, an open bar displays the previous closed bar's value and color; at the close it updates to that bar's completed values. Historical bars use their own completed values - the whole line is not shifted back one bar. Disable it to let the current value and color change intrabar. The linked Pine documentation explains bar states.

缺失价格源时，内部暂续前值，但连续有效数据计数归零，显示需重新预热。初始化使用价格种子；加载历史起点、数据商修订和外部源重绘都可能改变结果。收盘显示不等于任何情况下绝不重绘，预热也不保证递归计算完全收敛。

When source data is missing, the internal source carries forward but the valid-bar count resets, requiring fresh display warmup. Initialization uses a price seed. History start, vendor revisions, and repainting external sources can alter results. Closed-bar display is not a blanket no-repaint guarantee, and warmup does not guarantee full convergence.

6. 排查与使用边界 / Troubleshooting and Scope

调参先分清目的 / Tune with a Clear Purpose

ER 观察长度会改变路径效率的计算，从而影响两模式的平滑响应；标准快慢长度也会改变标准模式的曲线。平缓阈值只改变颜色，不改变线形。若只是想让灰色更容易辨认，先调颜色或阈值。

ER Length changes the efficiency calculation and therefore smoothing response in both modes. Fast/slow lengths also change the Standard KAMA curve. Flat Threshold affects color only, not line shape. If the aim is to distinguish flat sections more clearly, start with colors or the threshold.

比较时固定品种、周期、价格源和同一段历史，每次只改一个参数，记录弯曲、穿线和变色情况，再观察其他区间。这个过程帮助理解显示差异，不保证优化后的表现更好。

Keep the asset, timeframe, source, and historical window fixed. Change one parameter at a time, note curvature, crossings, and color changes, then examine other periods. This helps explain display differences; it does not guarantee better performance after tuning.

现象 Symptom	检查 Check
没有线 No line	历史不足、预热或源缺失 Insufficient history, warmup, or missing source
盘中不动 Holds intrabar	已收盘显示；自适应模式另查 ER=0 Closed-bar setting; also ER=0 in Adaptive
改快慢长度无变化 Fast/slow edits do nothing	是否选了自适应模式 Check whether Adaptive is selected
改阈值只变色 Threshold only changes color	正常，线值不变 Expected; line values are unchanged
标准模式报错 Standard-mode error	快速长度须小于慢速长度 Fast Length must be below Slow Length

跨品种使用时先保留默认值，并比较趋势、震荡和跳空区间。标准蜡烛与 Heikin Ashi、Renko 等图表使用的数据含义不同。颜色与位置是观察信息，不给出入场、止损或仓位规则；本手册不提供回测收益或盈利承诺。

Across assets, begin with defaults and compare directional, choppy, and gap periods. Standard candles and charts such as Heikin Ashi or Renko represent different data. Color and position are observations, with no entry, stop, or position-sizing rules. This guide makes no backtest-performance or profitability claim.

版本记录 / Edition Notes

本手册对应用户最终提供的 BullTrading KAMA Pro v1.0。封面为概念设计图，不代表真实行情或 TradingView 截图。

This guide describes the final supplied v1.0 source. Cover artwork is conceptual, not a market-data or TradingView screenshot.

最终源码已完成本地合成数据对照；尚未完成 TradingView 原生编译、实时柱及图表验收。

The final source passed local synthetic-data comparisons. Native TradingView compilation, realtime behavior and chart acceptance remain unverified.

技术概念 / Concepts: Perry J. Kaufman (KAMA); John F. Ehlers (MAMA / phase methods).