ER + KAMA

Dual-Window Indicator

USER MANUAL | MetaTrader 4 / MetaTrader 5

Version 1.00. One indicator displays the adaptive KAMA line on the main chart and the ER efficiency ratio in a separate subwindow.

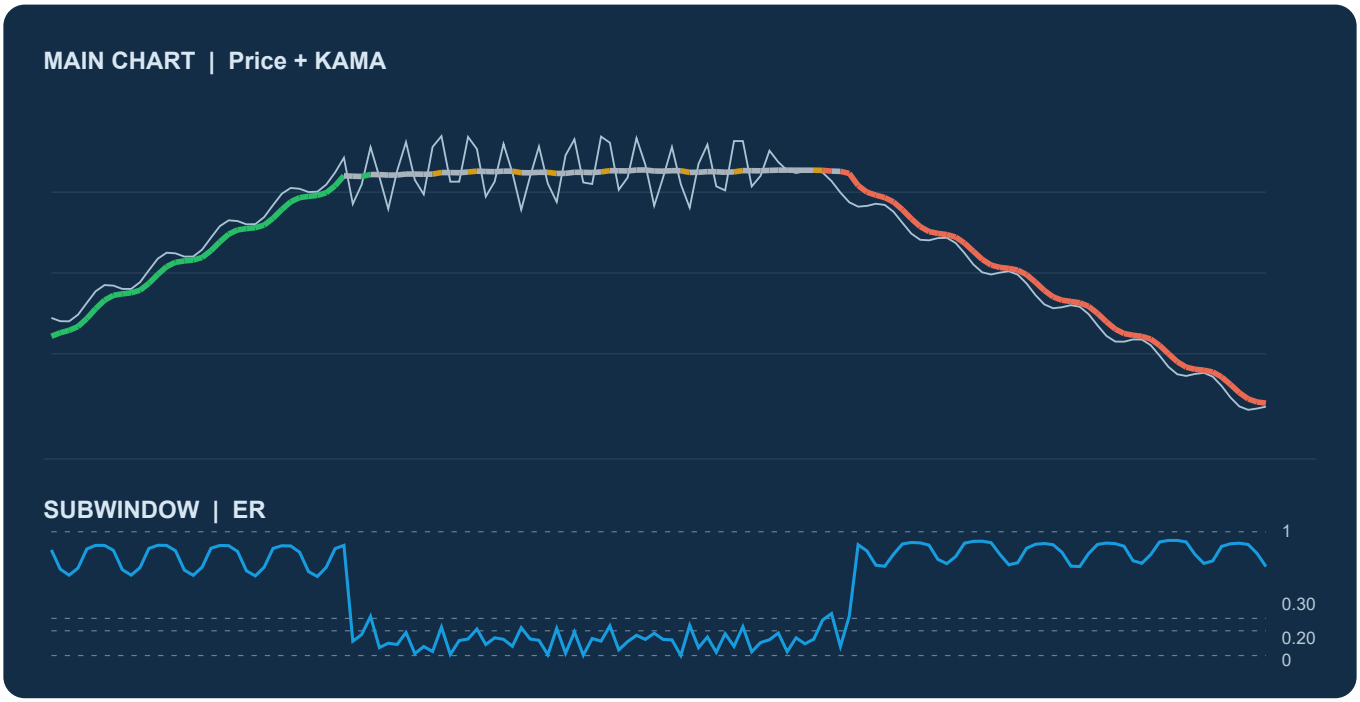


Illustration using simulated prices. The thin light line represents price, the colored line represents KAMA, and the lower blue line is ER. This is an explanatory diagram, not a market screenshot or a trading result.

Location	Display	What to observe
Main chart	Kaufman Adaptive Moving Average	Line direction, price position and ER-based state colors.
Subwindow	Efficiency Ratio, from 0 to 1	Directional efficiency, with reference levels at 0.20 and 0.30 by default.

The indicator supports chart analysis. It does not place orders, draw buy/sell arrows or issue sound alerts. Neither automated trading nor DLL imports need to be enabled.

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02 Installation and updates

Use the compiled file that matches your MetaTrader platform.

Item	MT4	MT5
Compiled file	ER_KAMA_Dual_MT4.ex4	ER_KAMA_Dual_MT5.ex5
Destination	MQL4 / Indicators	MQL5 / Indicators
Source file	ER_KAMA_Dual_MT4.mq4	ER_KAMA_Dual_MT5.mq5

1. Open the correct data folder

In the target trading terminal, choose File > Open Data Folder. Use this menu instead of guessing a folder path, especially if more than one terminal is installed.

2. Copy the indicator file

For MT4, copy the EX4 file into MQL4 / Indicators. For MT5, copy the EX5 file into MQL5 / Indicators. Only the matching compiled file is required for installation; keep source files separately if supplied.

3. Refresh and attach

Return to the terminal. Right-click Indicators in the Navigator and choose Refresh. Restart the terminal if necessary. Drag the matching indicator onto your symbol chart.

4. Confirm both displays

Keep the default inputs for the first setup and select OK. A colored KAMA line should appear on the main chart, with an ER subwindow below it. Attach the indicator once per chart.

Platform compatibility

EX4 and EX5 are platform-specific files and cannot be used interchangeably. Each chart, including a different timeframe of the same symbol, can use its own indicator settings.

Updating or removing the indicator

To update: remove the old instance from the chart, replace its compiled file, refresh the Navigator and attach the indicator again. Record custom inputs before updating.

To remove: open the chart's Indicators List, select this indicator and delete it. Its main-chart line and status text are removed; unrelated chart objects remain.

03 Reading ER and KAMA

ER describes directional efficiency; KAMA displays an adaptive moving average.

ER: how direct is the price path?

ER approaches 1 when the net price displacement is close to the total distance traveled over the observation window. ER approaches 0 when back-and-forth movement dominates. Both a steady rise and a steady fall can produce a high ER. When price is completely unchanged, this indicator returns ER = 0.

ER does not identify long or short direction. It is not a probability, percentage price change or volatility measure. The default 0.20 and 0.30 levels are adjustable state references.

KAMA: smoothing adapts to ER

Higher ER increases the smoothing coefficient, making KAMA more responsive to price. Lower ER reduces the coefficient, making the line smoother. Direction is determined by comparing KAMA values on adjacent bars.

Default color	Condition	Meaning
Green / LimeGreen	ER >= 0.30; KAMA rising	High efficiency with an upward KAMA slope.
Red / Tomato	ER >= 0.30; KAMA falling	High efficiency with a downward KAMA slope.
Gold	0.20 <= ER < 0.30	Between the two reference levels.
Silver	ER < 0.20	Low efficiency; also used when ER is high and KAMA is unchanged.
Orange	ER-based coloring disabled	A single, uniform KAMA color.

Interpreting the two displays together

Colors combine the ER interval with KAMA direction. They are not automatic buy or sell instructions. ER is part of the KAMA calculation, so agreement between the two displays is not confirmation from two independent signals.

Observe the ER interval, then the KAMA slope and price position. The current unfinished bar changes with incoming quotes. Use a completed bar when you need to inspect a completed state.

04 Calculation and thresholds

Both platform editions use the same defaults. Match the variable names in the input dialog.

Input / variable	Default	Purpose and accepted values
ER period InpERPeriod	10	Observation window N. Integer from 1 to 100000. Larger windows usually change state more gradually and require more history.
KAMA fast period InpFastPeriod	2	The faster smoothing bound. A positive integer, smaller than the slow period.
KAMA slow period InpSlowPeriod	30	The slower smoothing bound. Greater than the fast period and no more than 100000.
Applied price InpPrice	Close	Default: PRICE_CLOSE. Also supports open, high, low, median, typical and weighted-close prices.
ER low level InpLowLevel	0.20	ER below this level uses the low-efficiency state.
ER high level InpHighLevel	0.30	At or above this level, KAMA direction selects the rising, falling or flat color.

Levels must satisfy: 0 <= low level < high level <= 1. At least N + 1 bars are needed for valid output. Allow the terminal to load enough history after attaching the indicator.

Calculation overview

ER = absolute net price change over N steps / sum of absolute adjacent price changes over those N steps. If the denominator is zero, ER is set to zero.

KAMA converts ER into a smoothing coefficient and then updates recursively: previous KAMA + coefficient x (current price - previous KAMA). The fast and slow periods set coefficient bounds; they are not two separate moving-average lines.

Start with the default inputs. When comparing settings, record the symbol, chart timeframe and price field. The same levels can produce different state frequencies on different datasets.

05 Display and performance

Colors use MetaTrader names. true enables a setting; false disables it.

Input / variable	Default	Purpose
ER color InpERColor	DeepSkyBlue	Color of the ER line in the subwindow.
ER width InpERWidth	2	Line width from 1 to 5.
ER-based KAMA colors InpColorByER	true	Enables the state colors described on page 03.
High ER, rising KAMA InpUpColor	LimeGreen	High-efficiency color when KAMA rises.
High ER, falling KAMA InpDownColor	Tomato	High-efficiency color when KAMA falls.
Middle interval InpMiddleColor	Gold	Includes the low level; excludes the high level.
Low ER / flat color InpLowColor	Silver	Low efficiency, or high ER with unchanged KAMA.
Uniform KAMA color InpKAMAColor	Orange	Used only when ER-based coloring is disabled.
KAMA width InpKAMAWidth	2	Line width from 1 to 5.
Show status text InpShowStatus	true	Displays current ER, state and KAMA values on the main chart.
Status horizontal offset InpStatusX	12	Pixels from the left edge; must be zero or greater.
Status vertical offset InpStatusY	24	Pixels from the top edge; must be zero or greater.
Main-chart drawing range InpMaxSegments	3000	From 50 to 20000 bars. Limits the KAMA drawing only; ER and data values use loaded history.

If chart interaction becomes slow, reduce the drawing range or the number of charts with this indicator. A wider drawing range creates more chart objects. Adjust colors such as Silver for a light chart background.

06 Troubleshooting and support

Check file location, available history and inputs before reporting a display problem.

The indicator is missing from the Navigator.

Confirm the EX4 is in the active MT4 data folder under MQL4 / Indicators, or the EX5 is under MQL5 / Indicators in MT5. Refresh the list; restart the terminal if necessary.

It fails to attach, or no lines appear.

Check fast period < slow period, ordered thresholds, line widths and drawing range. History must contain more bars than the ER period. See the terminal Experts or Journal tabs for diagnostic messages.

ER is visible, but older KAMA segments are missing.

The main chart draws the latest 3000 bars by default. Increase the drawing range to inspect earlier bars, up to 20000. Available loaded history also limits the visible range.

Values and colors change on the latest bar.

The current bar is unfinished. Incoming quotes update ER and KAMA in real time. Inspect the previous completed bar when reviewing a completed state.

Early KAMA values differ after loading more history.

KAMA is recursive and begins with a simple average of the earliest group of prices. Adding earlier history rebuilds this starting point and can change values near the start of history.

Must I reattach after changing symbol or timeframe?

Normally no. The terminal reinitializes and recalculates the indicator for the new chart. Wait for history to synchronize. Comparisons across terminals require the same data source, timeframe, history and inputs.

Why can I not drag the main-chart line?

The indicator manages the KAMA line and keeps it aligned with bars; manual dragging is disabled. Change colors or widths in indicator properties. Remove the indicator through the Indicators List.

Technical support and copyright

Website: http://aistim.cn
Email: 271715999@qq.com
Include your platform version, symbol, timeframe, input settings, screenshots and relevant error messages when contacting support.

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