MOMENTUM OSCILLATOR [Scalping-Algo]

Complete User Guide — Dual-Mode Indicator

■ Momentum Oscillator Mode	■ HTF Reversal Divergences Mode

●	Type	Oscillator — separate pane (overlay=false)
●	Modes	2 — Momentum Oscillator / HTF Reversal Divergences
●	Platform	TradingView · Pine Script v6
●	License	Subscriber Use Only

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◆ This indicator runs in a separate pane below your price chart. It has two completely independent modes selectable from the top of the settings panel. Only one mode is active at a time — use Momentum Oscillator for trend-following and HTF Reversal Divergences for counter-trend setups.

1 INDICATOR OVERVIEW & DUAL-MODE SYSTEM

The Momentum Oscillator is a separate-pane indicator that runs two completely independent analysis engines under a single toggle. Select your active mode from "Active Mode" at the top of the settings panel.

	■ Momentum Oscillator	■ HTF Reversal Divergences
Purpose	Trend-following & momentum confirmation	Counter-trend reversals & divergence entries
Pane shows	Normalized momentum line, signal line, histogram, squeeze dots	RSI(7) line, OB/OS levels, RSI gradient fill
Overlays on chart	Background trend color	HTF candle pattern boxes + RSI divergence lines
Primary trigger	Trend shift alert (activeTrend changes)	Engulfing / Hammer / Shooting Star patterns + divergence lines
Best used with	Smart Scalping Signals for entry confirmation	Edge Finder ChoCh for reversal confluence
Market condition	Trending days, high ADX, expanding ATR	Range-bound days, exhaustion moves, news reversals

2 MODE 1 — MOMENTUM ENGINE

The Momentum Engine uses a Double EMA (DEMA) calculation to reduce lag compared to a standard EMA. It computes a fast and slow DEMA of HLC3 (typical price), subtracts them to get raw momentum, then normalizes by ATR(14) so the oscillator is comparable across different instruments and volatility regimes.

CALCULATION CHAIN

Step	Formula	Result
1	DEMA(HLC3, Fast Length)	Fast momentum component — responds quickly to price
2	DEMA(HLC3, Slow Length)	Slow baseline — filters out noise
3	Mom = Fast – Slow	Raw momentum difference between fast and slow
4	NormMom = (Mom / ATR14) × 10	Normalized momentum — ATR-scaled, comparable across instruments
5	NormSig = EMA(NormMom, Signal Length)	Signal line — smoothed version of momentum
6	Hist = NormMom – NormSig	Histogram — divergence between momentum and signal

DEMA EXPLAINED

A Double EMA (DEMA) is calculated as: 2 × EMA(src, len) – EMA(EMA(src, len), len). This reduces the lag of a standard EMA by applying a correction factor. The result is a smoother-than-price but faster-than-EMA momentum read.

ENGINE PARAMETERS

Parameter	Default	Effect
Fast Response	9	DEMA length for the fast component. Lower = reacts faster to price changes. Try 5–7 for 1M–3M scalping, 9–12 for 5M–15M.
Slow Baseline	21	DEMA length for the slow component. Sets the "center of gravity" for momentum. Must always be greater than Fast Length.
Signal Smoothing	9	EMA length applied to NormMom to create the signal line. Higher = smoother signal, slower crossovers. Lower = more crossovers, more noise.

Rule: Slow Baseline must always be larger than Fast Response. Typical ratio: Slow = 2× to 3× Fast (e.g. 9/21, 5/13, 12/34).

■ ATR NORMALIZATION: Because raw momentum is divided by ATR(14), the oscillator reads similarly on SPY (low ATR) and TSLA (high ATR). You don't need to re-tune the scale for different tickers — the math adjusts automatically.

3 MODE 1 — PRECISION ACCURACY FILTERS

Three optional filters gate the activeTrend state — the variable that controls background highlighting and the trend-shift alert. All three must pass simultaneously for a trend to be considered active. Disabling filters increases signal frequency but reduces precision.

Filter	Default	Threshold	How It Works
HTF Trend Lock (15m)	On	15M EMA21 > EMA50	Requires the 15-minute trend (EMA 21 vs EMA 50) to align with the local trend direction. Prevents local signals that are swimming against higher-timeframe institutional momentum.
Minimum RVOL	On	≥ 1.2×	Relative Volume = current volume ÷ 20-bar SMA volume. Background only activates when RVOL exceeds this threshold. Filters low-participation bars that generate unreliable signals.
Volatility Expansion	On	ATR > ATR SMA(20)	Checks whether current ATR(14) is above its 20-bar SMA. When true, volatility is expanding — momentum moves are more likely to follow through. Avoids false signals in compressed, sideways conditions.

ACTIVE TREND CONDITIONS — FULL REQUIREMENTS

A Bull Trend (background green, activeTrend = 1) requires ALL of:

› Close above VWAP — price is on the right side of the institutional average

› Local EMA 8 above EMA 21 — short-term structure is bullish

› HTF 15M EMA21 above EMA50 (if HTF Trend Lock ON) — higher TF confirms direction

› RVOL ≥ minimum threshold (if enabled) — participation is present

› ATR expanding (if Volatility Expansion ON) — volatility is broadening

› NormMom above NormSig — momentum line is above signal line

A Bear Trend (background red, activeTrend = -1) uses the mirror conditions. If conditions are mixed, activeTrend = 0 and no background is shown.

TREND STATE MACHINE

State	Value	Visual	Transition Logic
Bull	1	Green background	Entered when all bull conditions pass. Exits when NormMom < NormSig.
Bear	-1	Red background	Entered when all bear conditions pass. Exits when NormMom > NormSig.
Neutral	0	No background	Default state when no clear trend or when exiting bull/bear.

■ FILTER TUNING: Start with all three filters ON. If you miss too many good trades, first turn off Volatility Expansion. If still too restrictive, lower RVOL minimum to 0.8. Turning off HTF Trend Lock increases signals the most but also increases counter-trend risk.

4 MODE 1 — VISUALS & SQUEEZE DETECTION

The Momentum Oscillator pane displays four visual layers simultaneously: the momentum line, signal line, histogram bars, and optionally squeeze dots.

Visual Element	Color Logic	How to Read
Momentum Line	Green above zero / Red below zero	Main oscillator line. Crossing zero = potential trend shift.
Signal Line	Faint chart foreground color	Smoothed version of momentum. Momentum crossing signal = entry trigger.
Gradient Fill	Green gradient (above 0) / Red (below)	Visual emphasis of the oscillator's distance from zero.
Histogram Bars	Bright = accelerating, Dim = decelerating	Bright green: momentum expanding upward. Dim green: upward momentum slowing. Bright red: momentum expanding downward. Dim red: downward slowing.
Squeeze Dots	Yellow dots on zero line	Bollinger Bands are inside Keltner Channels — volatility compression. Often precedes explosive directional moves.
Background (chart)	Green (bull) / Red (bear)	activeTrend state — all filters passed. Controlled by Background Transparency setting.

SQUEEZE DETECTION

A Squeeze is detected when the upper Bollinger Band (SMA20 + 2× StdDev) is below the upper Keltner Channel (SMA20 + 1.5× ATR20). This means Bollinger Bands have contracted inside the Keltner envelope — a classic volatility compression signal. When squeeze dots appear and then momentum starts moving in one direction, that is the breakout entry.

Setting	Default	Notes
Show Squeeze Dots	On	Yellow dots on the zero line. Disable if chart feels cluttered.
Background Transparency	68	0 = fully opaque / 100 = invisible. 60–75 is the sweet spot for visibility without distraction.

5 MODE 1 — READING THE OSCILLATOR

Scenario	What to Look For	Action

Momentum crosses Signal upward	NormMom line crosses above NormSig	Potential long entry — confirm with background color and bar color from Edge Finder
Momentum crosses Signal downward	NormMom line crosses below NormSig	Potential short entry — check VWAP and HTF direction before acting
Momentum crosses zero upward	Line moves from negative to positive	Stronger bull signal — trend has officially flipped positive
Momentum crosses zero downward	Line moves from positive to negative	Stronger bear signal — trend has flipped negative
Histogram bars brightening	Each bar taller / more vivid than last	Momentum accelerating — ride the move, move stop to breakeven
Histogram bars dimming	Each bar shorter than previous	Momentum fading — consider taking partial profit at TP1
Yellow squeeze dots	Dots on zero line, no clear trend	Wait — compression phase. Watch for first directional momentum move after squeeze
Green background + upward cross	All filters pass + signal line cross	Highest-conviction long setup in Momentum mode
No background despite crossover	Crossover but filters not met	Caution — RVOL or ATR filter failing. Lower-confidence signal.

★ BEST ENTRY PATTERN: Yellow squeeze dots appear → background color turns green → histogram bars start printing bright green → momentum crosses above signal line. This four-step sequence is the highest-probability Momentum mode setup.

6 MODE 2 — HTF REVERSAL PATTERNS

In HTF Reversal Divergences mode, the pane switches to show an RSI(7) oscillator while simultaneously drawing candle pattern boxes on the main price chart from the selected higher timeframe. This mode identifies exhaustion and reversal setups.

HTF PATTERN SETTINGS

Setting	Default	Description
High Timeframe	15	Timeframe used to detect candle patterns (Engulfing, Pin Bars). Use one step above your chart TF. On a 5M chart, set to 15M.
Show Engulfing	On	Detects bearish and bullish engulfing candles on the HTF. Draws a box spanning the full candle range on the main chart.
Show Pin Bars	On	Detects Hammers (bullish) and Shooting Stars (bearish). The wick must compose >60% of the total candle range.
Trading Session	0930-1600	UTC-5 session window. Patterns outside this window are suppressed.
Use Session Filter	On	Enables the session gate. Disable for futures or crypto (24h markets).

PATTERN DETECTION LOGIC

Pattern	Direction	Detection Criteria
Bullish Engulfing	Bullish	Current HTF candle: close > open (green). Prior candle: close < open (red). Current close ≥ prior open AND current open ≤ prior close. Full body engulfment required.
Bearish Engulfing	Bearish	Current HTF candle: close < open (red). Prior candle: close > open (green). Current close ≤ prior open AND current open ≥ prior close. Full body engulfment.
Hammer	Bullish	Lower wick > 60% of total candle range (high – low). Indicates rejection of lower prices — bulls absorbed selling pressure.
Shooting Star	Bearish	Upper wick > 60% of total candle range. Indicates rejection of higher prices — bears absorbed buying pressure.

HOW PATTERNS APPEAR ON CHART

When a pattern is detected, three visual elements are drawn directly on the price chart:

› Outer box — full candle range (high to low), lightly filled with pattern color.

› Inner box — candle body (open to close), more opaque fill showing body size.

› Vertical midline — connects high to low at center of the candle's time bar.

› Label — "Engulfing", "Hammer", or "Shooting Star" printed above/below the candle.

- PATTERN + DIVERGENCE CONFLUENCE: The most powerful reversal setups occur when an HTF pattern (Engulfing or Hammer) fires at the same time as an RSI divergence line appears. This double confirmation dramatically increases the probability of a sustained reversal versus a single-signal setup.

7 MODE 2 — RSI DIVERGENCE SYSTEM

The RSI Divergence system draws divergence lines directly on the price chart when RSI pivot behavior mismatches price pivot behavior. All divergences require a volume confirmation and are filtered by the trading session.

Setting	Default	Description
Show RSI Divergences	On	Master toggle for all divergence line drawing.
RSI Length	7	Short RSI period for faster, more responsive divergence detection. Lower = more divergences detected. Standard is 14 but 7 is tuned for scalping.
Pivot Right Lookback	5	Bars to the right of a potential pivot that must exist before it is confirmed. Higher = more confirmation required, fewer but more reliable pivots.
Pivot Left Lookback	5	Bars to the left of the pivot used to define the swing. Match with Right for symmetry.
Min Div RVOL	1.1	Relative Volume on the pivot bar must exceed this threshold. Ensures divergences are backed by real volume participation.
RSI OB Level	70	Bearish divergences are only flagged when prior RSI pivot was above 70 (overbought zone).
RSI OS Level	30	Bullish divergences are only flagged when prior RSI pivot was below 30 (oversold zone).

BULLISH DIVERGENCE DETECTION — LOGIC

A Bullish Divergence is detected at a pivot low. All three conditions must be true:

Condition	Requirement
RSI Condition	Current RSI pivot low is HIGHER than the previous RSI pivot low (RSI making higher lows while price makes lower lows). At least one pivot must be below the OS level (default 30).
Price Condition	Current price pivot low is LOWER than the previous pivot low (price is making a new lower low — confirming divergence direction). Price difference must exceed 0.5× ATR to avoid noise.
Volume Condition	Volume on the pivot bar must exceed Min Div RVOL × 20-bar average. Ensures the low was made with real selling pressure, not thin air.

When all conditions pass: a green line is drawn on the price chart from the prior pivot low to the current pivot low, showing the divergence gap.

BEARISH DIVERGENCE DETECTION — LOGIC

A Bearish Divergence is detected at a pivot high. Mirror conditions apply:

Condition	Requirement
RSI Condition	Current RSI pivot high is LOWER than the previous RSI high (RSI making lower highs while price makes higher highs). At least one pivot must be above the OB level (default 70).
Price Condition	Current price pivot high is HIGHER than the previous pivot high (price making a new higher high). Difference must exceed 0.5× ATR.

Volume Condition	Volume on the pivot bar must exceed Min Div RVOL × 20-bar average.

When all conditions pass: a red line is drawn on the price chart connecting the two pivot highs.

■ PIVOT LOOKBACK TUNING: Default is 5/5 (symmetric). Increase both to 7–8 on 15M+ charts for more mature, reliable pivots with fewer false signals. Decrease to 3/3 on 1M–3M charts to catch faster-forming divergences.

8 ALERTS REFERENCE

The indicator fires one alert type — available only in Momentum Oscillator mode. It triggers once per bar close when the activeTrend state changes (0→1, 0→-1, 1→0, -1→0).

Alert	Trigger Condition	Message Sent
Trend Shift	activeTrend changes AND ≠ 0	■ High-Accuracy Trend Shift on TICKER (TF)

SETUP STEPS

01	**Switch Mode**	Ensure Active Mode is set to "Momentum Oscillator" — alerts only fire in this mode.
02	**Create Alert**	In TradingView: Bell icon → Create Alert → Condition: "Momentum Oscillator [Scalping-Algo]".
03	**Select Trigger**	Choose "any alert() call" or the specific trend shift option.
04	**Add Webhook**	Under Notifications, enable Webhook URL and paste your Discord webhook URL.
05	**Frequency**	Set to "Once Per Bar Close" — already enforced in the script.

9 SETTINGS QUICK REFERENCE

Group	Setting	Default	Quick Notes
Mode Selector	Active Mode	Momentum Oscillator	2 modes — switch completely changes pane
Momentum Engine	Fast Response	9	DEMA fast length; lower = faster reaction
Momentum Engine	Slow Baseline	21	DEMA slow length; always > Fast
Momentum Engine	Signal Smoothing	9	EMA of momentum; higher = smoother signal
Accuracy Filters	HTF Trend Lock (15m)	On	Requires 15M EMA21 > EMA50 alignment
Accuracy Filters	Minimum RVOL	1.2	Volume participation gate (vs 20-bar avg)
Accuracy Filters	Volatility Expansion	On	ATR must be expanding vs its 20-bar avg
MO Visuals	Show Squeeze Dots	On	Yellow dots = BB inside KC compression
MO Visuals	Background Transparency	68	0=opaque / 100=invisible; 60–75 recommended
Global (Div Mode)	Trading Session Filter	0930-1600	UTC-5; disable for 24h markets
Global (Div Mode)	Use Session Filter	On	Gates all div/pattern detection to session
HTF Patterns	High Timeframe	15	TF for engulfing/pin bar detection

HTF Patterns	Show Engulfing Patterns	On	Bullish/bearish engulfing boxes on chart
HTF Patterns	Show Pin Bars	On	Hammer and Shooting Star boxes on chart
RSI Divergences	Show RSI Divergences	On	Toggle all divergence lines
RSI Divergences	RSI Length	7	Short RSI for fast scalp divergences
RSI Divergences	Pivot Right Lookback	5	Bars right of pivot for confirmation
RSI Divergences	Pivot Left Lookback	5	Bars left of pivot for swing definition
RSI Divergences	Min Div RVOL	1.1	Volume threshold for divergence validation
RSI Divergences	RSI OB Level	70	Bear div requires prior pivot above this
RSI Divergences	RSI OS Level	30	Bull div requires prior pivot below this

10 RECOMMENDED SETUPS & TRADING WORKFLOW

SETUP A — 5-MINUTE TREND FOLLOWING (Momentum Mode)

Setting	Value	Reason
Active Mode	Momentum Oscillator	Trend-following configuration
Fast Response	9 (default)	Balanced speed for 5M bars
Slow Baseline	21 (default)	Standard trend baseline
Signal Smoothing	9 (default)	Clean crossover signals
HTF Trend Lock	On	15M alignment required — critical filter
Minimum RVOL	1.2 (default)	Prevents signals on low-volume bars
Volatility Expansion	On	Ensures breakout-quality moves only
Background Transp.	68 (default)	Subtle enough not to distract from price

SETUP B — 3-MINUTE SCALP (Momentum Mode, faster settings)

Setting	Value	Reason
Active Mode	Momentum Oscillator	—
Fast Response	5	Faster DEMA catches 3M momentum earlier
Slow Baseline	13	Tighter baseline for faster bars
Signal Smoothing	5	Fewer lag crossovers on 3M
HTF Trend Lock	On	Still require 15M alignment — non-negotiable
Minimum RVOL	1.0	Slightly relaxed on 3M — bars move fast
Volatility Expansion	Off	3M ATR expands on nearly every bar — disable to reduce misses
Show Squeeze Dots	On	Critical signal on 3M — watch for post-squeeze breakouts

SETUP C — HTF REVERSAL HUNTING (Divergence Mode)

Setting	Value	Reason
Active Mode	HTF Reversal Divergences	Switch to divergence mode

High Timeframe	15	Detect 15M candle patterns while on 3M/5M chart
Show Engulfing	On	Primary pattern — most reliable reversal signal
Show Pin Bars	On	Hammers at support + div = prime entry
RSI Length	7	Fast RSI detects divergences earlier
Pivot Right Lookback	5	Standard confirmation window
Min Div RVOL	1.2	Slightly stricter than default for higher quality
RSI OB Level	70	Only overbought peaks trigger bearish div
RSI OS Level	30	Only oversold troughs trigger bullish div
Use Session Filter	On	Avoid low-quality pre/post market patterns

THREE-INDICATOR SCALPING WORKFLOW

Combining all three Scalping-Algo indicators for maximum confluence:

Step	Indicator	What to Check
1	Momentum Oscillator	Background turns green/red — activeTrend confirmed with all filters passing
2	Smart Scalping Signals	Buy/Sell label fires on same bar or within 1–2 bars of MO trend shift
3	Edge Finder	Bar color is HC Bull (cyan) or HC Bear (magenta) — maximum score alignment
4	All Three Aligned	Enter trade in the agreed direction. Use Edge Finder's SL/TP for exits.
5	Momentum Oscillator	Watch histogram bars — if they start dimming, prepare to exit at TP1/TP2
6	Momentum Oscillator Alert	If trend shift alert fires before TP3, exit remaining position immediately