

# Wave Trend Cross Reversion

Expert Advisor Documentation

| PLATFORM           | TYPE                                   | TIMEFRAME     | WEBSITE                                                |
|--------------------|----------------------------------------|---------------|--------------------------------------------------------|
| MetaTrader 5 (MT5) | Mean Reversion (Oscillator Exhaustion) | M5 – H1 (any) | <a href="http://www.algobot.live">www.algobot.live</a> |

**⚠ 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

**Wave Trend Cross Reversion** is a mean-reversion-from-exhaustion Expert Advisor built around the **WaveTrend** oscillator (popularized by LazyBear). It trades the moment when a stretched market runs out of steam: when selling has exhausted itself deep in oversold territory, or buying has burned out high in overbought territory, and momentum begins to turn back toward the mean.

WaveTrend is *not* a stock library indicator here — the EA reconstructs it from raw price bars using chained running EMAs and a mean-absolute-deviation normalization, which makes it mathematically distinct from RSI, CCI, or Stochastic. The oscillator swings around a zero line; readings beyond `±ExtremeLevel` flag exhaustion. The tradable event is a **cross of the WaveTrend line and its signal line that happens inside an extreme zone** — the classic WaveTrend "dot."

The system is fully symmetric with distinct long and short rules, uses ATR-based stops and targets, holds only one position at a time per magic number, and runs on whatever single timeframe the chart is set to — no timeframe is hardcoded.

**In one sentence:** when the WaveTrend line crosses its signal line while both are wrung out in an extreme zone, the EA fades the exhaustion and rides the snap-back toward the mean, protected by an ATR stop and target.

# How It Works

---

## Building the WaveTrend Oscillator

Once per **closed** primary-timeframe bar, the EA folds the new bar into a chain of running EMAs (each carried as its own state with `alpha = 2 / (n + 1)`, because the engine's EMA helper returns a scalar and cannot be nested). The construction is:

```
ap  = (High + Low + Close) / 3          typical price
esa  = EMA(ap, ChannelLength)           channel centre line
d    = EMA(|ap - esa|, ChannelLength)   mean absolute deviation
ci   = (ap - esa) / (0.015 * d)         channel index (CCI-like core)
wt1  = EMA(ci, AverageLength)           the WaveTrend line
wt2  = SMA(wt1, SignalLength)           its signal line
```

The `0.015` constant scales the channel index so that typical readings fall in a familiar oscillator range, and `d` guards against division by near-zero deviation. The result, `wt1`, oscillates around zero; `wt2` is a short moving average of it that lags slightly and provides the crossover trigger.

## Entry Logic — the Cross Inside an Extreme Zone

A signal only fires when a line cross coincides with an exhaustion reading. The two rules are perfectly symmetric:

- **Long (Buy):** `wt1` crosses *up* through `wt2` while `wt1 ≤ -ExtremeLevel`. Selling is exhausted deep in oversold and momentum is turning up — the EA buys the snap-back.
- **Short (Sell):** `wt1` crosses *down* through `wt2` while `wt1 ≥ +ExtremeLevel`. Buying is exhausted high in overbought and momentum is rolling over — the EA sells the fade.

Cross detection compares the previous closed bar's line values with the current ones: an up-cross is `prevWt1 ≤ prevWt2 && wt1 > wt2`, and a down-cross is `prevWt1 ≥ prevWt2 && wt1 < wt2`. The extreme-zone gate is what separates a genuine exhaustion turn from ordinary chop near the middle of the range.

## Warmup, Spread & Position Filters

- **Warmup:** the EA waits until the chained EMAs have settled, the signal window is full, and ATR has enough history — specifically `ChannelLength + AverageLength + SignalLength + 5` closed bars, plus `AtrPeriod + 1` bars for the ATR.
- **Spread filter:** a new entry is skipped when the current spread (in points) exceeds `MaxSpreadPoints`, avoiding fills during illiquid or news-driven widening.
- **One position per magic:** only a single position is held at a time. While one is open, no new trade is stacked.

## Exits — Brackets and the Opposite Cross

Risk is sized from the Average True Range of the just-closed bar:

```
stop    = AtrStopMult   * ATR
target  = AtrTargetMult * ATR
```

- **Long:** entry at Ask, stop-loss at `entry - stop`, take-profit at `entry + target`.
- **Short:** entry at Bid, stop-loss at `entry + stop`, take-profit at `entry - target`.
- **Early exit:** if an *opposite* extreme cross appears before either bracket is hit — momentum has flipped against the trade — the EA closes the open position immediately.

**Why it acts on closed bars:** every calculation and decision is made once per newly-closed bar (the bar that was forming becomes shift 1). This removes intrabar repainting from the WaveTrend cross, so a signal that appears stays put.

## 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 a **long** setup: price sells off into exhaustion, the WaveTrend line (gold) dips below the oversold extreme and then crosses up through its signal line (grey) — the "dot" — triggering a buy that reverts toward the mean.



*Illustrative example only. Actual market behaviour varies.*

### Reading the illustration

Price sells off (red candles) into an exhaustion low. In the oscillator panel below, the gold WaveTrend line ( `wt1` ) plunges past the –Extreme level, then crosses *up* through the grey signal line ( `wt2` ) while still oversold — the "dot." That cross triggers the

### Buy

. The stop sits an ATR-multiple below entry, the target an ATR-multiple above; here the snap-back carries price up to the take-profit.

## Parameters

| Parameter       | Default | Description                                                                                                                          |
|-----------------|---------|--------------------------------------------------------------------------------------------------------------------------------------|
| ChannelLength   | 10      | EMA length for the channel centre ( <code>esa</code> ) and its mean-absolute-deviation ( <code>d</code> ). Range 5–21, step 1.       |
| AverageLength   | 21      | EMA length that smooths the channel index into the WaveTrend line ( <code>wt1</code> ). Range 8–40, step 1.                          |
| SignalLength    | 4       | SMA length of <code>wt1</code> that forms the signal line ( <code>wt2</code> ). Range 2–8, step 1.                                   |
| ExtremeLevel    | 53.0    | The absolute WaveTrend reading required at the cross for a signal to count (over-bought / over-sold threshold). Range 30–80, step 1. |
| AtrPeriod       | 14      | ATR lookback used to size the stop and target. Range 7–30, step 1.                                                                   |
| AtrStopMult     | 2.0     | Stop-loss distance as a multiple of ATR ( <code>stop = AtrStopMult × ATR</code> ). Range 1.0–4.0, step 0.5.                          |
| AtrTargetMult   | 3.0     | Take-profit distance as a multiple of ATR ( <code>target = AtrTargetMult × ATR</code> ). Range 1.0–6.0, step 0.5.                    |
| MaxSpreadPoints | 60      | Skip new entries when the current spread (in points) is wider than this. Range 5–300, step 5.                                        |
| Lots            | 0.10    | Fixed order volume in lots. Range 0.01–1.0, step 0.05.                                                                               |
| Magic           | 8821    | Magic number identifying this EA's positions. Range 0–9,999,999, step 1.                                                             |

**Tuning tip:** `ExtremeLevel` is the primary sensitivity dial. A higher value (e.g. 65–80) demands deeper exhaustion and yields fewer, higher-conviction signals; a lower value (e.g. 35–45) fires more often but with weaker confirmation. Balance it against `AtrTargetMult` so the reward covers the extra noise.

## Recommended Settings

---

The strategy suits liquid, intraday mean-reverting markets and runs on whatever timeframe the chart uses — the timeframe is never hardcoded.

- **Markets:** FX majors (e.g. EURUSD, GBPUSD) or a liquid index such as US500.
- **Timeframe:** M5 to H1. Lower timeframes give more frequent "dots" but demand a tight `MaxSpreadPoints`; higher timeframes give cleaner, rarer exhaustion turns.
- **Defaults:** the shipped values (ChannelLength 10, AverageLength 21, SignalLength 4, ExtremeLevel 53, ATR 14 with 2.0 stop / 3.0 target) are a balanced starting point — a 1.5:1 reward-to-risk bracket around a mid-strength exhaustion threshold.
- **Spread:** keep `MaxSpreadPoints` aligned with your broker and timeframe; tighten it on M5, loosen it on H1.
- **Volume:** start with the default `Lots = 0.10` (or lower) and size according to your account risk, never a fixed lot you cannot absorb on a full stop-out.

**Always validate before going live.** Backtest across several years and multiple symbols, then forward-test on a demo account. Mean-reversion systems can suffer during strong, sustained trends where "oversold" simply gets more oversold — confirm the behaviour on your instrument before risking capital.

## How to Install on MetaTrader 5

---

- 1 Copy `WaveTrendCrossReversion.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.