

Projection Band Trend Pullback

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Trend Pullback (Continuation)

TIMEFRAME

H1–H4 (Intraday to Swing)

WEBSITE

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

Projection Band Trend Pullback is a trend-continuation Expert Advisor built on Mel Widner's *Projection Bands* and *Projection Oscillator*, first published in *Stocks & Commodities* (1995). Unlike Bollinger or Donchian channels, which assume a flat trading range, the Projection Bands are aware of the prevailing **slope** of the market: they tilt up in an up-move and down in a down-move, so the channel tracks direction rather than fighting it.

The EA does not chase breakouts. Instead, it exploits the natural rhythm of a healthy trend: price repeatedly retraces toward the far band and then resumes. The strategy waits for that dip and buys the **resumption** — the moment the oscillator crosses back up out of the discount — while a medium-term EMA confirms the trend is intact. Because the channel is already tilted with the trend, an oversold reading is a genuine within-trend discount rather than the start of a reversal.

Risk is managed with ATR-based stops and targets, one position per magic number at a time, and fixed-lot sizing. Parameter ranges are deliberately wide to resist curve-fitting. The strategy suits liquid trending instruments — major FX pairs, gold, and stock indices — on intraday-to-swing timeframes, and operates on a single (chart) timeframe.

Core idea: A slope-aware channel turns "oversold in an uptrend" from a warning sign into a buying opportunity. The bands lean with the trend, so a low oscillator reading marks a discount inside the move — not its end.

How It Works

1. Building the Projection Bands

Over a window of `ProjPeriod` bars, the EA fits a least-squares regression line separately to the **highs** (slope `mHigh`) and to the **lows** (slope `mLow`). Each past high is then slid *forward* to the current bar along its own slope, and the maximum is taken as the **Upper** band; each past low is slid forward and the minimum becomes the **Lower** band:

```
Upper = max over window of ( High[j] + mHigh * (N-1-j) )
Lower = min over window of ( Low[j] + mLow * (N-1-j) )
```

These two envelopes hug the trend rather than floating flat around it.

2. The Projection Oscillator (PO)

The Projection Oscillator measures where the close sits *inside* the slanted channel — a trend-adjusted Stochastic %K, clamped to the 0–100 range:

```
PO = 100 * (Close - Lower) / (Upper - Lower)
```

A low PO means price is near the lower (far) band during an uptrend — a discount. A high PO means price is near the upper band during a downtrend.

3. Trend Filter

An exponential moving average of the close over `TrendPeriod` bars defines the medium-term trend. The trend is considered **up** when the close is above the EMA *and* the EMA itself is rising; **down** when the close is below a falling EMA.

Entry Logic

All conditions are evaluated on the **just-closed bar** (new-bar detection ensures each signal is acted on exactly once). The long and short rules are distinct, symmetric mirrors of each other.

- **Long entry** — all must hold:
 - Trend up: `Close > EMA(TrendPeriod)` and the EMA is rising.
 - Pullback: PO was `≤ OversoldLevel` on the prior bar.

- Resumption: PO is now $> \text{OversoldLevel}$ (crosses back up out of the dip).
- **Short entry** — the exact mirror:
 - Trend down: $\text{Close} < \text{EMA}(\text{TrendPeriod})$ and the EMA is falling.
 - Rally: PO was $\geq \text{OverboughtLevel}$ on the prior bar.
 - Resumption: PO is now $< \text{OverboughtLevel}$ (crosses back down out of the rally).

Worked example (long)

In a rising market the EMA is climbing and price holds above it. Price pulls back and PO sinks to 22 (below the default OversoldLevel of 25) — the pullback arms a long. On the next closed bar buyers step in, PO prints 31, crossing back above 25. With the trend still up, the EA opens a buy at the ask.

Exit Logic & Risk Management

Every position is bracketed at entry with an ATR-based stop-loss and take-profit computed from the ATR over AtrPeriod bars:

- **Long:** stop-loss = entry - $\text{AtrSlMult} \times \text{ATR}$; take-profit = entry + $\text{AtrTpMult} \times \text{ATR}$.
- **Short:** stop-loss = entry + $\text{AtrSlMult} \times \text{ATR}$; take-profit = entry - $\text{AtrTpMult} \times \text{ATR}$.

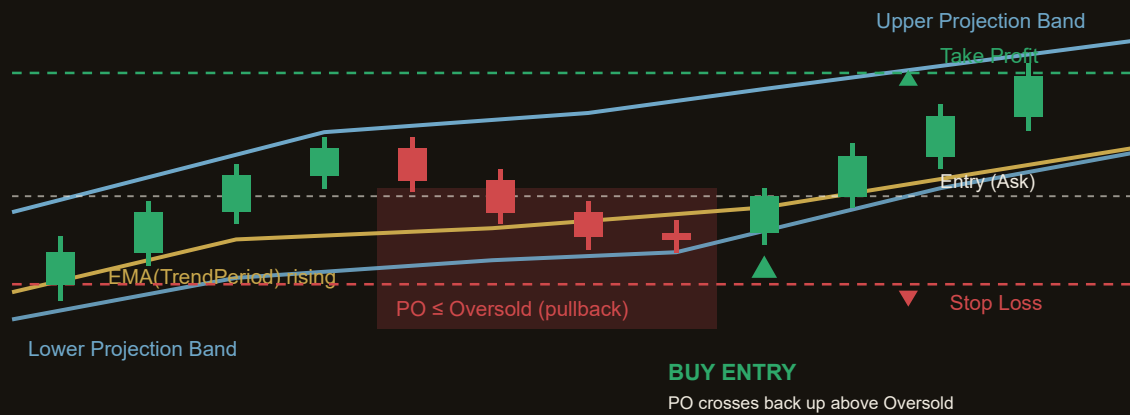
With the default multipliers (AtrSlMult 2.0, AtrTpMult 3.0) each trade targets a 1.5:1 reward-to-risk ratio. Only **one position per magic number** is held at a time; the EA takes no new signal while a trade is open, though it keeps tracking the oscillator and trend continuously so state stays consistent.

Note: There is no trailing stop or time-based exit. Each trade is resolved purely by its ATR stop-loss or take-profit, keeping behaviour transparent and easy to backtest.

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.

Uptrend Pullback & Resumption — Long Setup



Illustrative example only. Actual market behaviour varies.

Parameters

Parameter	Default	Description
ProjPeriod	20	Regression window (bars) for the projection bands and oscillator. Range 8–60, step 2.
TrendPeriod	40	EMA length on the close that defines the medium-term trend. Range 15–120, step 5.
OversoldLevel	25.0	Projection Oscillator dip level that arms a long resumption. Range 10–40, step 5.
OverboughtLevel	75.0	Projection Oscillator peak level that arms a short resumption. Range 60–90, step 5.
AtrPeriod	14	ATR length used for stop-loss / take-profit distance. Range 7–30, step 1.
AtrSIMult	2.0	Stop-loss distance as a multiple of ATR (entry $\mp$ AtrSIMult $\times$ ATR). Range 1.0–4.0, step 0.5.
AtrTpMult	3.0	Take-profit distance as a multiple of ATR (entry $\pm$ AtrTpMult $\times$ ATR). Range 1.0–6.0, step 0.5.
Lots	0.10	Fixed lot size per trade. Range 0.01–1.0, step 0.05.
Magic	7734	Magic number identifying this EA's positions (one position per magic at a time).

Guard rails: On initialization the EA clamps windows to sane minimums (`ProjPeriod` ≥ 3 , `TrendPeriod` ≥ 2 , `AtrPeriod` ≥ 2) and forces the two oscillator levels to stay correctly ordered — if `OverboughtLevel` is not above `OversoldLevel` it is pushed up automatically.

Recommended Settings

The defaults are a balanced starting point for liquid, trending instruments. The following are practical guidelines — always validate on your own broker's data before going live.

- **Instruments:** major FX pairs (EUR/USD, GBP/USD, USD/JPY), gold (XAU/USD), and major stock indices — markets that trend cleanly and offer tight spreads.
- **Timeframe:** H1 to H4 works well for intraday-to-swing horizons. The EA runs on whatever timeframe the chart is set to, so choose it deliberately.
- **Trend strength:** raise `TrendPeriod` (e.g. 60–80) to demand a stronger, slower trend and filter out choppy conditions; lower it for more, faster signals.
- **Oscillator levels:** widen the band (e.g. `OversoldLevel` 20 / `OverboughtLevel` 80) to wait for deeper pullbacks and fewer, higher-quality entries.
- **Risk sizing:** keep `Lots` conservative relative to account equity. The default 1.5:1 reward-to-risk (SL $2 \times \text{ATR}$, TP $3 \times \text{ATR}$) can be tuned via the ATR multipliers.

Optimization caution: The wide parameter ranges are designed to resist curve-fitting. Avoid over-optimizing to a single historical period — prefer settings that stay robust across multiple instruments and date ranges, and always forward-test on a demo account first.

How to Install on MetaTrader 5

- 1 Copy `ProjectionBandTrendPullback.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

Tip: Before trading live, run the EA in the MT5 *Strategy Tester* on your broker's history and then on a demo account. Confirm the spread, symbol, and timeframe match your recommended settings.

Risk Warning

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