

AT CoPilot

Conceptual and operational guide for the algorithmic trading advisor. How it reads the market, builds its score, and how to read its signals to decide — always with manual execution.

v2.13

ADVISOR MODE — NO AUTOMATIC EXECUTION

5 PILLARS · 5 FILTERS · 105 PTS

SIGNAL SCALE (0-105 PTS)

STRONG SHORT 105	SHORT 90	WAIT 80	WATCH 60	LONG 40	STRONG LONG -40 / -105
----------------------------	--------------------	-------------------	--------------------	-------------------	----------------------------------

Index

01 What is AT CoPilot

System philosophy and general analysis architecture

02 The 5 pillars of the score

EMA, RSI, MACD, VWAP and Volume — what each one measures

03 From score to signal

How the pillars add up and what each level means

04 The blocking filters (gates)

Trend separation, ADX, and larger timeframe (HTF)

05 Informational indicators

Candles, divergences, momentum, and confluence — context without affecting the score

06 How to read the panel

Anatomy of each line, with a real case analyzed

07 Strategy modes

Scalping, Intraday, and Custom — when to use each

08 Step-by-step operating guide

From installation to the entry decision

09 Solved practical case

A WAIT blocked by HTF, explained line by line

10 Best practices and limits

What the bot does, what it doesn't do, and why

11 Glossary

Technical terms used on the panel

What is AT CoPilot

An algorithmic advisor that reads the market in real time with five technical indicators, assigns them a weighted score, and applies safety filters before suggesting a direction. It never executes an order on its own: the trader always decides.

AT CoPilot runs as a cBot inside cTrader/cAlgo and works in Advisor Mode: it analyzes every tick, updates a visual panel on the chart, and, when appropriate, draws signal arrows — but the buy or sell order is always placed by the person, manually. This design decision is intentional: the system is meant to expand the trader's judgment, not replace it.

All the analysis comes down to one central question: do the technical indicators confirm a direction with enough strength and context to justify an entry? To answer it, the bot goes through three stages, always in the same order:

STAGE 1	STAGE 2	STAGE 3
5 Pillars • EMA · RSI · MACD • VWAP · Volume • add up weighted points	Score / 105 • classifies into 6 levels • 57 • Strong · Long · Watch · Wait...	Filters (gates) • can force WAIT • Trend separation · ADX • Larger timeframe (HTF) • Min VWAP / Volume

KEY IDEA

A high score alone doesn't guarantee an actionable signal: the Stage 3 filters can block any entry, no matter how good the score is, if the broader context (trend strength or larger timeframe) doesn't line up.

Instrument and context of use

The system was developed and validated on US500 (also tested on NAS100), originally intended for scalping/intraday trading on short timeframes (M1–M15), and extended with an Intraday preset for trading on wider timeframes.

The 5 pillars of the score

Each pillar contributes points only when it confirms the direction already set by the base trend (fast EMA vs. slow EMA). If the trend is bullish, all pillars evaluate using their "Long" version; if bearish, their "Short" version — they're never mixed.

EMA

25pts

Exponential moving averages — base weight 25 · bonus up to +5 based on price distance

Compares a fast EMA against a slow EMA. If the fast one is above the slow one, the underlying trend is bullish (and vice versa). Besides the base weight for being aligned, it adds a bonus proportional to how far the current price is from the fast EMA — up to a cap of 5 points — rewarding moves with real momentum, not just marginal crossovers.

RSI

25pts

Relative strength index — max weight 25 · graduated zones

Measures whether momentum is keeping up without being exhausted. In a bullish trend, the ideal zone is RSI 50–70 (full score); 70–80 is considered early overbought (60% of the score); above 80, extreme overbought (30%); and a healthy pullback in 30–50 also gets partial credit (30%). The logic is symmetric for a bearish trend.

MACD

25pts

Moving average convergence/divergence — max weight 25 · two-tier confirmation

In a bullish scenario, it awards full score if the MACD line is above the signal and the histogram is positive (strong confirmation); half score if only the MACD line is above the signal but the histogram doesn't confirm yet (partial confirmation); and zero if neither condition is met. Together with RSI, it's the pillar that tends most to "lag behind" EMA/VWAP on sharp turns — by design, it's a conservative filter.

VWAP

15pts

Volume-weighted average price (session) — weight 15 · all or nothing

Rebuilt per session (real, not approximated): if the current price is above the day's VWAP, the full 15 points are awarded in a bullish trend (and the symmetric case for bearish); if not, zero. Besides adding to the score, VWAP acts as an entry filter — by default, if it's not in favor, the system won't enable Long/Short even if the total score is high.

VOL

10pts

Relative volume — max weight 10 · proportional, not binary

Compares current volume against the average of previous closed bars. The score scales gradually based on how close current volume is to that target average — not "all or nothing" like VWAP. Unlike the other four pillars, Volume doesn't distinguish direction: it measures market participation/conviction, not whether the move is bullish or bearish, so its formula is identical in both scenarios.

WHY 105 AND NOT 100

The five base weights add up to $25+25+25+15+10 = 100$. The EMA distance bonus (up to +5) is what pushes the theoretical ceiling to 105 — which is why the panel always shows the score out of "/105".

From score to signal

The five pillars add up into a single number between 0 and 105. That number, combined with the base trend direction, places the market in one of six signal levels.

STRONG SHORT 105	SHORT 90	WAIT 80	WATCH 60	LONG 40	STRONG LONG -40 / -105
---------------------	-------------	------------	-------------	------------	---------------------------

Level	Score Range	What it means
Strong Long / Strong Short	90 – 105	All five pillars confirm strongly in the same direction. The system's highest-conviction signal.
Long / Short	80 – 89	Solid confirmation, though one or more pillars don't reach the max. Standard actionable signal.
Watch	60 – 79	Probable direction but incomplete — worth watching, not entering yet.
Wait	0 – 59, or blocked by a filter	Not enough confirmation, or a safety filter (VWAP, Volume, ADX, HTF, trend) prevents entry even if the score is higher.

IMPORTANT POINT

If VWAP or Volume don't confirm, the system never delivers Long/Short or Strong Long/Strong Short — at most, it degrades to Watch (if the score still reaches 60) or to Wait. In other words, these two pillars also act as a filter, not just as score.

A score isn't always the final word

The score answers the question "how aligned are the technical indicators?" But a market can have aligned indicators and still be in an unreliable zone — for example, without real trend strength, or going against the bias of a larger timeframe. For those cases there are the blocking filters, covered in the next section, which can force Wait even in the face of a technically high score.

The blocking filters (gates)

Three additional checks, independent from each other and always evaluated in the same order. Any of the three can force the result to Wait, no matter how high the score is.

#	Filter	What it checks	Parameter
1	Trend separation (fast vs. slow EMA)	Are the two EMAs separated enough (% of price) to speak of a clear trend, or nearly stuck together (sideways range)?	MinTrendSeparationPercent
2	ADX — trend strength	Measures STRENGTH, not direction. A market can have separated EMAs and still move in a wide, slow range — low ADX detects that.	MinADX (def. 20)
3	Trend on a larger timeframe (HTF)	Compares the price of the larger timeframe's candle (e.g. H1) against its own EMA. If the underlying bias contradicts the entry, it blocks.	HtfTimeframe / HtfEmaPeriod

ANY OF THE THREE → WAIT

The three gates are evaluated in order (Separation → ADX → HTF) and the first one that fails defines the block reason shown on the panel ("BLOCKED: ..."). These add to the VWAP and Volume filters already covered in the previous section — in total, five possible block reasons, all at the same hierarchical level.

Why filters exist separately from the score

EMA, RSI, MACD, VWAP and Volume answer "is price moving with these indicators in favor?" But that doesn't answer two other equally important questions: "does that move have real strength, or is it sideways noise?" (ADX) and "does that direction agree with the underlying trend on a larger timeframe, or am I trading against the tide?" (HTF). Separating these questions from the score prevents a high score from "buying" the ok of a context that's actually unfavorable.

Informational indicators

Four additional signals that appear on the panel but never modify the score or the final action. They're context for the trader in Advisor Mode — the judgment of what to do with them always stays on the human side.

Candle patterns

On the last closed candle, the system detects classic patterns: Engulfing, Marubozu, Doji, Pin Bar/Hammer, Pin Bar/Shooting Star, and Inside Bar — each labeled Bullish, Bearish, or Neutral on the panel's "Candle:" line. When the pattern's range overlaps with VWAP or one of the EMAs, the panel flags it as confluence (e.g. "[confluence: VWAP+EMA9]"), useful for identifying zones where several technical references overlap.

RSI divergences

Compares the last two price pivots (swing highs or lows) against the RSI value at those same points, within a configurable bar window. Unlike EMA or MACD — which confirm a trend already underway — a divergence can anticipate a turn before the rest of the system detects it. That's why it's deliberately left out of the score: it's an early warning, not a confirmation.

Momentum (acceleration/deceleration)

Compares the slope of the MACD histogram against the previous closed bar to indicate whether momentum is accelerating or decelerating, in a bullish or bearish direction. It's a "second derivative" reading of MACD — complements the MACD pillar (already in the score) without duplicating its weight.

Zero-pillar diagnostics

When the block is due to VWAP or Volume, the panel also adds which directional pillars (EMA, RSI, or MACD) are at exactly zero points — useful for understanding at a glance whether the market really isn't confirming anything, or if only one or two pillars are failing.

WHY SEPARATE THEM FROM THE SCORE

Mixing signals of a different nature (confirmation vs. anticipation) into a single number would reduce the score's interpretability. Keeping them as context lines respects the system's conservative bias — preferring fewer but more consolidated signals — and leaves the reading of nuance in the trader's hands.

How to read the panel

The panel is drawn directly on the chart and always follows the same structure, top to bottom.

Panel line	What it shows
Score: 57/105 ^ WAIT	Total score, underlying direction arrow (^ bullish / v bearish), and final action already resolved by score + filters.
[VOL not confirming]	Block reason, if any — can be VWAP, Volume, unclear trend, low ADX, or HTF contradiction.
Price: 29627.2	Current real-time price used for the entire calculation.
EMA / RSI / MACD / VWAP / Volume	Each pillar's score over its max weight, with icon [OK] (max), [-] (partial), or [--] (zero).
ADX: 23.2 (trend)	ADX value and whether it exceeds the configured minimum to consider there's trend strength.
Candle: Pin Bar / Hammer	Pattern detected on the last closed candle (informational).
HTF (Hour): Bearish	Bias of the configured larger timeframe, and whether it matches the direction being evaluated.
Momentum: Decelerating	Acceleration or deceleration of the MACD histogram (informational).
Divergence: No divergence	Result of the RSI divergence check on the last pivots (informational).
BLOCKED: ...	Free-text explanation of the first filter that prevented an actionable signal, including which pillars are at zero if applicable.

Real case

The following capture corresponds to NAS100 on M15. It's a good example because it combines a mid score, a zero pillar, and an active block — exactly the three elements you need to know how to read together.



Note: this panel capture is from the previous Spanish-language build of the bot; it will be recaptured with the current English panel before final publication.

HOW TO READ THIS CASE

Score 57/105 → Wait zone by score. The "^" arrow indicates EMA and VWAP aligned bullish (max), but MACD is at zero and Volume barely confirms (1/10). ADX (23.2) does pass the minimum — it's not the reason for the block. The real block is the HTF gate: H1 is bearish, contrary to M15's bullish reading.

Strategy modes

A single parameter (StrategyMode) reconfigures all the indicators' periods at once when the bot starts. The weights, signal thresholds, and VWAP logic don't change between modes — it's the same scoring model in all three cases, only the time sensitivity changes.

Parameter	Scalping (M1–M15)	Intraday	Custom
Fast / slow EMA	9 / 21	20 / 50	
RSI	9	14	
MACD (fast/slow/signal)	5 / 13 / 6	12 / 26 / 9	
Volume Lookback	10	25	Respects each manually loaded value — nothing gets overridden
Min trend separation	0.01%	0.04%	
Update interval	2 s	20 s	
ADX Period	14	14	
Divergence window	20 bars	40 bars	
HTF Timeframe	H1	H4	

ATTENTION – MANUAL COHERENCE

The bot doesn't automatically detect which chart timeframe it's running on: StrategyMode sets the periods independently of the actual chart timeframe. If you're trading on M15 but the active mode is Intraday, the indicators (and the HTF) will use the Intraday configuration anyway — it's the trader's responsibility to keep mode and chart consistent. The panel header ("AT CoPilot [Scalping]") is how you confirm which preset is active, since cTrader's parameter dialog only shows what was loaded by hand, not what the mode overrides in memory.

MinAdxForTrend and HtfEmaPeriod are global — they don't change between Scalping and Intraday, they're configured once regardless of the chosen mode.

Step-by-step operating guide

1 Load the cBot and choose the mode

Add AT CoPilot to the chart of the desired instrument. Choose StrategyMode based on your trading horizon (Scalping for M1–M15, Intraday for larger timeframes, Custom if you're going to tune the periods yourself) and confirm in the panel header that the loaded mode is the expected one.

2 Wait for enough history

The bot needs a minimum number of closed bars (based on the longest period among slow EMA, RSI, Volume, and slow MACD+signal) before emitting any reliable reading. If the panel doesn't show data yet, this is why — it's not an error.

3 Look at the action first, not the score

The panel's top line ("Score: XX/105 | ^/v ACTION") already resolves score + the five filters. There's no need to add up the pillars by hand — they're there to help you understand why that action was reached, not to recalculate it.

4 If there's a BLOCK, read it before anything else

A high score with an active block means the system sees aligned indicators but a context that doesn't back it up (low strength, low volume, or a larger timeframe against it). It's information as valuable as a positive signal.

5 Check the informational context

Candle, Momentum, and Divergence don't change the action, but help nuance it — for example, a confirmed Long with RSI in bearish divergence deserves more caution than one without divergences.

6 Decide and execute manually

AT CoPilot never sends orders. The final decision to enter, wait, or discard the signal — as well as position size and risk management — is always the trader's responsibility.

TIP

The arrows drawn on the chart (^ Long, ^^ Strong Long, v Short, vv Strong Short) remain as a permanent visual history per bar — useful for reviewing in hindsight what the system would have signaled on past moves, without needing to recalculate anything.

Solved practical case

We revisit the capture from section 06 and walk through the system's complete reasoning, in the same order the code evaluates it.

Step	What the system evaluates	Result in this case
1	Base trend direction (fast vs. slow EMA)	Fast EMA > slow EMA → bullish base trend. All pillars are calculated using their Long version.
2	Score of the 5 pillars	EMA 25/25, RSI 15/25, MACD 0/25, VWAP 15/15, Volume 1/10 → Total score ≈ 56–57/105.
3	Trend separation filter	Passes — there's enough separation between EMAs to speak of a clear trend.
4	ADX filter	ADX 23.2, above the minimum (20 by default) → passes, there's real trend strength.
5	Larger timeframe filter (HTF)	HTF (H1) is bearish, and the evaluated direction is bullish → they don't match → blocks.
6	Final action	WAIT, with block reason "HTF (Hour) bearish, contrary to entry timeframe" and diagnostic note "Pillars at 0: MACD".

READING FOR THE TRADER

The system isn't saying "there's nothing bullish here" — EMA and VWAP confirm with the max score, and even the last closed candle is a bullish Pin Bar/Hammer. What it's specifically saying is: "this could be a short-term bounce within a larger trend that's still bearish on H1, and current volume doesn't confirm conviction either." That's a contextual reading that a single score number couldn't convey on its own — hence the value of showing the five filters separately instead of a single traffic light.

This is also a good example of why MACD and Volume ended up at zero or near-zero without that implying a system error: MACD is, by design, the slowest pillar to confirm sharp turns (to avoid premature signals), and this particular bar's volume hasn't reached the recent average yet.

Best practices and limits

What AT CoPilot does

Analyzes five technical indicators in real time and combines them into a single weighted score.

Applies five safety filters (VWAP, Volume, trend separation, ADX, and HTF) that can block a signal even if the score is high.

Shows additional context (candle patterns, divergences, momentum, confluence) without that context altering the result.

Leaves a visual history of arrows and logs to review the system's past behavior.

What AT CoPilot does not do

It doesn't send or modify orders — execution is always manual.

It doesn't manage position size, stop-loss, or take-profit (an ATR-suggested SL/TP feature was partially developed but paused; not active in this version).

It doesn't automatically adjust its periods to the chart's actual timeframe — it depends on StrategyMode being chosen consistently with the chart in use.

It doesn't guarantee results: it's a tool for technical analysis and organizing judgment, not a promise of profitability.

WARNING

This manual describes the system's technical operation for analysis and educational purposes. It does not constitute financial advice or an investment recommendation. Trading leveraged instruments carries the risk of capital loss.

Design philosophy

The system is deliberately calibrated with a conservative bias: preferring fewer but more consolidated signals, rather than reacting faster at the cost of more false signals. This decision was explicitly validated against real V-shaped bounce cases, where EMA/VWAP/Volume confirmed quickly but MACD hadn't yet — and the system, correctly, stayed on Watch instead of jumping the gun.

Glossary

EMA (Exponential Moving Average)

Exponential moving average — gives more weight to recent prices than a simple average. The system uses two: a fast one and a slow one, to define the base trend.

RSI (Relative Strength Index)

Momentum oscillator between 0 and 100 that measures the speed and magnitude of recent price moves.

MACD (Moving Average Convergence/Divergence)

Momentum indicator based on the difference between two EMAs, with a signal line and a histogram that measures the distance between them.

VWAP (Volume Weighted Average Price)

Volume-weighted average price, rebuilt from the start of the session — the day's "fair price" reference.

ADX (Average Directional Index)

Measures the strength of a trend, without indicating its direction. Low values suggest a sideways/ranging market.

HTF (Higher Timeframe)

A timeframe larger than the one being traded (e.g. H1 while trading on M15), used as a context filter for the underlying trend.

Gate / Blocking filter

Boolean check (pass/fail) that can force the final action to Wait regardless of the score.

Score

Weighted sum of the five pillars, out of a maximum of 105 points.

StrategyMode

Parameter that selects a period preset (Scalping, Intraday) or respects the manual configuration (Custom).

Advisor Mode

Operating mode in which the system only analyzes and suggests — it never executes orders automatically.

Confluence

Spatial coincidence between a detected candle pattern and a technical reference (VWAP or an EMA), shown as additional context.

Divergence (RSI)

Disagreement between the direction of price and the direction of RSI at the last swing pivots — an early signal, not a confirmation.