

Limitless

Limitless Labs

October 2025

Limitless is an on-chain prediction exchange built on an EVM-compatible network. Markets are represented as conditional claims on collateral over finite sets of outcomes. The protocol combines a high-throughput off-chain central limit order book (CLOB) with non-custodial on-chain settlement and fully on-chain automated market makers (AMMs). Settlement, collateral and risk are enforced by an immutable set of smart contracts based on the Conditional Tokens Framework (CTF), including support for negative-risk market groups in which at most one outcome across several markets can resolve positively. For liquid markets, the CLOB exposes rich matching logic over conditional positions, including not only standard bid-ask matches but also portfolio-level transformations such as bid-bid and ask-ask netting inside the same conditional structure. For thinner markets, constant-product AMMs provide continuous two-sided prices.

A dynamic fee schedule on CLOB markets charges a constant rate in the region of highest uncertainty and decays as prices approach zero or one, while AMM markets use a flat fee in collateral. The LMTS token links protocol fees, liquidity incentives and long-term alignment into a single coordination asset. The architecture is designed so that binary markets and barrier-style contracts are natural first primitives, while the same conditional token layer can support more complex, multi-outcome and path-dependent structures over time without changing the core settlement logic.

Overview

Limitless is a non-custodial prediction exchange focused on trading event risk on-chain. Markets are settled in collateral using ERC-20 tokens designated as collateral assets. Each market is encoded as a collection of conditional claims on this collateral, implemented as ERC-1155 outcome tokens. Binary markets and barrier-style contracts on liquid crypto assets are the first class of markets supported, but the design of the conditional layer is general and extends to richer payoff structures constructed as portfolios of outcome tokens.

The protocol is built around two execution venues that share the same settlement layer. Liquid markets are served by an off-chain CLOB and matching engine that aggregate orders, perform basic risk checks and regularly submit matched trades to on-chain contracts. Long-tail or low-

liquidity markets use constant-product AMMs that directly hold outcome tokens and collateral on-chain. In both cases, positions resolve through the same CTF-based representation, which allows portfolios to be decomposed, recombined and hedged in a uniform way.

Limitless is designed for high-frequency directional trading, capital-efficient liquidity provision and composable exposure to event risk. Traders interact through standard order and swap interfaces, while integrators can build structured products, automated strategies and higher-level applications on top of the conditional token layer.

Market Representation

Limitless represents markets as conditional claims on collateral over finite sets of mutually exclusive and collectively exhaustive outcomes. For a given question or event specification, the CTF

contract defines a set of outcome tokens, each corresponding to one element of the outcome space. Holding an outcome token entitles the owner to a unit of collateral if and only if the corresponding outcome is realised. Any unit of unconditioned collateral can be split into a complete set of outcome tokens, and any holder of a complete set can recombine it back into collateral. This ensures that the combined payoff of a complete set is always fully collateralised.

In the simplest and currently most prominent case, the outcome space is binary. One outcome token is informally denoted as “YES” and the complementary one as “NO”. A unit of collateral can be split into a YES/NO pair, and after resolution exactly one of these two tokens redeems for collateral while the other becomes worthless. For exposition and for the definition of the fee model, it is convenient to speak in terms of the price and quantity of a YES token in a binary market, but more complex markets can be decomposed into portfolios of such binary legs or into higher-cardinality outcome sets handled by the same CTF machinery.

Many related markets on the same underlying are naturally coupled. Negative-risk (NegRisk) market sets capture this structure by grouping markets such that, by design, at most one designated outcome across the group can pay out in any realised state of the world. Typical examples are families of price-barrier markets on the same asset and expiry, where crossing a higher barrier implies crossing all lower ones, or winner-takes-all structures in which only one candidate can rank first. Within a NegRisk set the sum of maximum payoffs per unit of collateral is bounded, and the exchange can allow conversions between outcome tokens that preserve these bounds. This enables traders and liquidity providers to rotate exposure inside a group without posting additional collateral, while the on-chain contracts enforce that portfolios built from NegRisk sets cannot exceed one unit of payoff per underlying state partition.

Trading and Settlement

The on-chain protocol is composed of a compact set of immutable contracts. The Conditional Tokens contract acts as the canonical ledger of collateral and outcome tokens. When users move collateral into CTF, it is immediately associated with their address in the form of unconditional or conditional positions. There is no upgradeable vault or privileged custodial contract that can reroute balances; the settlement logic is encoded directly in the immutable CTF and exchange contracts.

For markets that are served by the CLOB, settlement is handled by a family of exchange contracts that interact with CTF. Traders keep collateral in their own wallets and grant standard ERC-20 and ERC-1155 allowances to the relevant exchange contracts and the CTF contract. The off-chain matching engine maintains order books, receives signed orders and produces batches of fills. An operator then submits these batches on-chain. The exchange contracts verify signatures and order parameters, check balances and NegRisk constraints and, if all checks pass, transfer collateral and outcome tokens between trader addresses and the CTF contract. Collateral is pulled only in the precise amounts authorised by signed orders and encoded price and size, and is either converted into new outcome tokens or released from existing positions, depending on the trade. If any check fails, the transaction reverts and no balances move.

Because orders on the CLOB are defined as transformations between conditional positions rather than simple spot transfers of a single token, the matching engine is not restricted to standard bid–ask matches. It can also clear compatible bid–bid and ask–ask flows that correspond to opposite transformations at the portfolio level, for example when two traders are rotating exposure between strikes within the same NegRisk set in opposite directions or exchanging payoff profiles across different outcomes. In such cases the engine constructs a netting batch whose on-chain image is a sequence of CTF splits, merges and conversions that preserve all collateral and NegRisk invariants while allowing both sides to

improve their positions. This is a core advantage of using a conditional-token representation instead of a single-asset order book.

For markets that run on AMMs, each market has its own pool contract created via a factory. Pools hold reserves of outcome tokens and, when required by the curve, collateral. Swaps against the pool are executed entirely on-chain by calling the pool contract, which computes the new reserves according to the constant-product formula, enforces slippage constraints and charges a flat fee in collateral or outcome tokens. These pool contracts are deployed as immutable code and hold only the collateral explicitly deposited into them by liquidity providers and swappers.

All core settlement contracts are deployed without admin keys that can rewrite balances or bypass invariants. The operator that submits CLOB settlement transactions cannot arbitrarily move user funds: any batch that does not correspond to valid signed orders or that violates balance or NegRisk checks is rejected at the contract level. The operator can at most delay or withhold settlement, in which case users remain fully collateralised inside CTF and AMM pools and can withdraw unused collateral or redeem resolved positions directly through the contracts or alternative front-ends.

Off-chain components are optimised for performance but never custody funds. The order-matching engine processes limit and market orders, matches them by price-time priority and applies basic per-account risk and sanity checks to reject orders that would obviously fail on-chain. An indexer and data API provide real-time and historical data on prices, books, trades and P&L for both traders and integrators.

Fee Mechanism

Limitless applies different fee models to AMM and CLOB markets to reflect their roles in the system while keeping the overall logic simple and deterministic.

In AMM-only markets, swaps incur a flat fee rate α on the notional of the trade, expressed in collateral units. If a swap changes the trader’s

collateral exposure by an amount N then the AMM fee is

$$\text{fee}_{\text{AMM}} = \alpha N,$$

with typical values of α between 0.25% and 2%. The fee is split between liquidity providers, by increasing the value of LP shares, and the protocol, by directing its portion to the LMTS fee router.

For binary markets on the CLOB, Limitless uses a dynamic fee schedule that depends on the transaction price p of a reference outcome token, denoted “YES”. The schedule is intended to charge a high, constant fee where uncertainty and information content are highest, near $p = 0.5$, and to reduce fees as prices approach the extremes, where trades are closer to risk-free arbitrage. Let $p \in (0, 1)$ denote the trade price of the YES token, let q be the number of YES outcome tokens traded and let feeRateBps be a base fee rate in basis points. Define

$$\varphi = \frac{\text{feeRateBps}}{10\,000}, \quad m(p) = \min(p, 1 - p).$$

When a trader buys q YES at price p , the protocol charges a fee denominated in outcome tokens. The buy-side fee is

$$\text{fee}_{\text{buy,tokens}} = q \varphi \frac{m(p)}{p}.$$

For $p \leq 0.5$ the function $m(p)$ equals p and the fee simplifies to $q\varphi$, which is a constant fraction of the quantity, independent of price. For $p > 0.5$ the term $m(p)$ becomes $1 - p$ and the effective percentage decreases towards zero as the price approaches one. The corresponding fee in collateral units is given by p times the fee in tokens.

When a trader sells q YES at price p , the trade notional in collateral is $N = qp$ and the protocol charges a fee denominated in collateral. The sell-side fee is

$$\text{fee}_{\text{sell,collateral}} = N \varphi m(p) = qp\varphi m(p).$$

Viewed as a percentage of notional, the sell-side fee equals $\varphi m(p)$. It is small when the market is close to consensus on either outcome and largest near the region of maximum uncertainty. With $\text{feeRateBps} = 300$ the buy fee equals three percent of quantity for all prices up to one half, while

sells pay between a few basis points and around one and a half percent of notional depending on p .

For multi-outcome markets built on the same conditional layer, the same functional form can be applied leg-by-leg by treating each traded leg as a binary claim against an appropriate reference state, so that the fee schedule remains coherent across binary and more complex structures.

On top of the base fee model, Limitless can operate maker incentive programmes on selected markets. A fraction of taker fees may be periodically rebated to addresses that supplied resting liquidity, proportional to their filled maker notional or time at the top of the book. Additional LMTS or points emissions can be directed to such makers to bootstrap tight spreads and deep books. Scoring and accounting for these programmes are performed off-chain, while distribution is executed through on-chain reward contracts.

LMTS Token and Incentives

LMTS is the native token of the Limitless ecosystem. Its role is to connect protocol economics, liquidity incentives and long-term governance into a single coordination asset rather than to act as a short-term reward. Holders can stake LMTS into dedicated contracts that receive a share of protocol fees, either directly in collateral or via periodic purchases of LMTS on the open market. Staked positions can be associated with trading accounts so that committed participants benefit from reduced taker fees, enhanced maker rebates or access to specific liquidity programmes.

The total supply of LMTS is fixed at one billion tokens. Portions of this supply are reserved for core contributors, early backers, liquidity, ecosystem rewards and treasury, but the exact split is not central to the economic design of the exchange. What matters is that the treasury and reward pools are large enough to support long-term growth, while team and investor allocations are subject to vesting and lock-ups that align them with the development of the protocol rather than short-term price action.

From the perspective of a trader or liquidity provider, LMTS is intended to behave as a claim on the future activity of the exchange. As more volume is routed through the CLOB and AMM venues, fee flows increase and can be shared with stakers or used to support LMTS liquidity. This creates a feedback loop in which healthy trading activity reinforces the value of committed participation, while the token in turn can be used to steer incentives towards markets and behaviours that improve the quality of the platform.

Resolution and Risk

Every prediction market on Limitless is backed by a clear resolution rule. For objective markets, such as price barriers or other measurable events, the rule specifies the underlying data source and the condition under which an outcome is deemed to have occurred. An oracle adapter reads the relevant data at the scheduled time and posts the outcome to an on-chain resolution module. Once written, the outcome becomes final and holders of winning outcome tokens can redeem them one-for-one for collateral, while losing tokens have no redemption value. When a complete set of outcome tokens is held for a question, it can always be merged back into collateral regardless of the path taken to acquire it.

Subjective or complex markets may rely on designated resolvers or committees, potentially with dispute windows and escalation paths. These mechanisms are designed to minimise ambiguity and to ensure that, in the rare cases where no clear resolution is possible, outcomes are handled in a predictable way that preserves collateral and avoids arbitrary decisions.

Like any smart-contract system, Limitless is exposed to contract risk, oracle risk, infrastructure risk and regulatory uncertainty. The contracts are written in Solidity, audited and deployed on an EVM-compatible network with conservative upgrade policies, but bugs and vulnerabilities cannot be fully ruled out. Oracle adapters rely on external data sources that may be delayed, manipulated or temporarily unavailable, which can in turn affect resolutions. The off-chain match-

ing engine and data infrastructure can fail or be censored, impacting execution quality even though they cannot unilaterally seize funds. Finally, prediction markets intersect with a range of regulatory frameworks; this document is descriptive only and does not constitute legal advice, and users are responsible for understanding the rules applicable in their jurisdictions.

Conclusion

Limitless combines conditional tokens, negative-risk market sets and a hybrid CLOB–AMM execution model into a single protocol for trading event risk on-chain. The design emphasises expressiveness of markets, robust and transparent settlement of collateral and a simple yet expressive fee structure tailored to binary trading while remaining compatible with richer payoff structures. Through the LMTS token, protocol fees and incentives are tied to long-term participation rather than short-term distribution mechanics. As the set of listed markets, oracle feeds and integrations grows, the same settlement layer can support speculative trading, hedging of protocol and portfolio risks and the integration of prediction signals into higher-level systems such as governance and treasury management.