

# Delta Hedging

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Lyra's mechanism automatically calculates and hedges the delta of LPs. The algorithm for determining the net delta exposure of the AMM is outlined in full detail in section 5.1.1 of the [whitepaper](#).

In short, deltas are **additive** across strikes and expiries. This means we can calculate the net delta of the pool by:

1. Calculating the delta for each listed option
2. Fetching the net position of the AMM for each listed option (e.g. long 5, short 2)
3. Multiply the net position by the delta for each listed option
4. Sum the results of (3) across each listed option

The resulting sum of this process represents the **net delta** of the AMM. This is the amount of the underlying asset that needs to be bought (if negative) or sold (if positive) to become delta neutral.

When the delta exposure of the pool is greater than a certain threshold (initialized at launch date) Lyra community members can call the incentivized `hedgeDelta()` function. This function prompts the protocol to compose with a spot exchange to buy or sell the underlying asset, hedging the delta of the pool.

**Example:** Imagine there are only two options listed, the ETH 50 delta and 30 delta calls. If the AMM is short 10 and long 6, respectively, the net delta will be equal to  $0.5 * -10 + 0.3 * 6 = -3$ . This means the AMM is short 3 ETH, and therefore needs to buy back 3 ETH from an external exchange to hedge its delta.

