Kaiko

MIGRATION GUIDE

Correlation, Beta, and Realized Volatility

Amberdata → Kaiko

2026

www.kaiko.com

1 At a glance

What this endpoint gives you: for two spot pairs on the same exchange, this endpoint returns one row per day with each pair's daily close, daily log return and realized volatility over 30, 90 and 180 days, together with the **correlation** of the two pairs' daily returns and the **beta of the second pair relative to the first** (the first pair is the benchmark) over the same windows. At Kaiko, this is the `correlation-beta` endpoint.

> What changes for you
>
> - You will call a new endpoint, `/analytics/volatility/correlation-beta`, using your Kaiko API key in the `X-Api-Key` header (§2).
> - Each pair is now expressed with two lowercase parameters: `pair=btc_usd` becomes `base_asset=btc` and `quote_asset=usd`, and `pair2=eth_usd` becomes `base_asset_2=eth` and `quote_asset_2=usd`. Exchange codes also change, for example `gdax` becomes `cbse` (§3, §6).
> - Timestamps are now returned as ISO 8601 strings, for example `"2026-10-22T00:00:00.000Z"` instead of `1792627200000` (milliseconds). This is the format Amberdata returned with `timeFormat=iso`, so the `timeFormat` parameter is no longer needed.
> - Realized volatilities are now returned as decimals, for example `0.3171` where Amberdata returned `31.71` (percent). Returns, correlations and betas keep the same scale.
> - Field names now use snake_case: the `One` and `Two` suffixes become no suffix and `_2`, for example `realizedVolatility30Two` becomes `realized_volatility_30d_2`. The pairs are no longer repeated in each row (§5).
> - The methodology remains the same (§7).

Coverage & distribution

Data type: A daily series, with one row per UTC day on which both pairs have a close (stamped 00:00 UTC)
Returns: Daily log returns of each pair's close
Realized volatility: Parkinson over 30, 90 and 180 daily bars, annualised by √365
Correlation and beta: Over the trailing 30, 90 and 180 days of daily log returns
Source: Spot exchange daily OHLC · two pairs on one exchange per request
Exchanges: 26 spot exchanges, including the Amberdata venues listed in §6
Range: The full series in one response, up to the last complete day
Distribution: REST API

2 Endpoint & authentication

	Amberdata (today)	Kaiko (new)
Method	GET	GET
Base URL	`https://api.amberdata.com`	`https://api.kaiko.io`
Path	`/markets/derivatives/analytics /realized-volatility/correlation-beta`	`/analytics/volatility /correlation-beta`
Auth	API key header `x-api-key`	API key header `X-Api-Key` (your Kaiko key)

Header names are not case-sensitive, so `x-api-key` and `X-Api-Key` refer to the same header: only the key itself changes. **Versioning:** Amberdata reported its version in `payload.metadata.api-version` (`2023-09-30`). Kaiko accepts an optional `api_version` query parameter (the default and current version is `2026-10-01`) and returns it in `meta.api_version`.

3 Request parameters

Amberdata param	Kaiko param	Change	Notes
`exchange` (required)	`exchange` (required)	RENAMED	The name is unchanged, but the values are now Kaiko codes (§6), for example `gdax` → `cbse`. Codes must be lowercase: `CBSE` returns a 400 error.
`pair` (required)	`base_asset` + `quote_asset` (both required)	RENAMED	The first pair, used as the benchmark: `btc_usd` becomes `base_asset=btc` and `quote_asset=usd`. Both must be lowercase.
`pair2` (required)	`base_asset_2` + `quote_asset_2` (both required)	RENAMED	The second pair, measured relative to the first: `eth_usd` becomes `base_asset_2=eth` and `quote_asset_2=usd`. Both must be lowercase.
`timeFormat` (optional)	None	REMOVED	Kaiko timestamps are always ISO 8601 strings, the same as Amberdata's `timeFormat=iso`. You can simply remove this parameter from your requests.
None	`api_version` (optional)	NEW	Lets you pin the response format. The default is `2026-10-01`.

Range and limits

- **No date parameters, on both sides:** every request returns the full series in one response, with the newest day first and without pagination.
- **Last row:** the series ends with the last complete day. The current day appears once it ends, on both sides.
- **First row:** the series starts 180 days after the first day both pairs trade on the exchange, so that the 180-day windows are full, on both sides.
- **Pairs:** both pairs must be on the requested exchange. Their quote assets can differ, for example `btc-usd` and `eth-usdc`.

4 Response envelope & metadata

These are the fields around the data, in other words the wrapper your parser reads before reaching the numbers. This envelope is **identical on every Amberdata endpoint**.

Amberdata field	Kaiko field	Change	Notes
`status`	None	REMOVED	Please use the HTTP status code (200) instead.
`title`	None	REMOVED	There is no equivalent on success.
`description`	None	REMOVED	There is no equivalent on success.
`payload.data`	`data`	RENAMED	Now at the top level. An **array**, with one row per day.

Amberdata field	Kaiko field	Change	Notes
`payload.metadata`	`meta`	RENAMED	Now at the top level.
`api-version`	`api_version`	RENAMED	`2026-10-01` (Amberdata: `2023-09-30`).
None	`count`	NEW	The number of rows in `data`.
None	`next_url`	NEW	Always `null`, since everything comes in one page.
None	`url`	NEW	Your request URL, including `api_version`.

On Amberdata, `api-version` sits inside `payload.metadata`. On Kaiko, `api_version`, `count`, `next_url` and `url` all sit inside `meta`.

Errors and empty results

- **Pair not available on the exchange:** Amberdata returned a 200 response with an empty `data` array. Kaiko returns a **404** error with the code `unknown_instrument`.
- **Same pair twice:** Amberdata returned a 200 response with a correlation and a beta of 1. Kaiko returns a **400** error with the code `invalid_parameter`, since a pair has no beta on itself.
- **Uppercase codes:** Amberdata accepted them. Kaiko returns a **400** error.
- **No common history past the 180-day warm-up:** both APIs return a 200 response with an empty `data` array.
- **Missing or invalid parameter:** both APIs return a 400 error. Kaiko errors are `application/problem+json` (RFC 9457) bodies that include `status`, `title`, a `detail` message naming the parameter, and the code `invalid_parameter`.

5 Response data fields

Amberdata suffixed the first pair's fields with `One` and the second pair's with `Two`. Kaiko leaves the first pair without a suffix and adds `_2` for the second. The windows become `30d`, `90d` and `180d`. The table below uses the 30-day fields as an example.

Amberdata field	Kaiko field	Type	Change
`timestamp`	`timestamp`	string	RENAMED
`pairOne`, `pairTwo`	None	string	REMOVED
`closeOne`	`close`	number	RENAMED
`closeTwo`	`close_2`	number	RENAMED
`returnOne`	`log_return`	number	RENAMED
`returnTwo`	`log_return_2`	number	RENAMED
`realizedVolatility30One`	`realized_volatility_30d`	number	RENAMED
`realizedVolatility30Two`	`realized_volatility_30d_2`	number	RENAMED

Amberdata field	Kaiko field	Type	Change
`correlation30`	`correlation_30d`	number	RENAMED
`beta30`	`beta_30d`	number	RENAMED

The same pattern applies to 90 and 180 days, for example `realizedVolatility180Two` → `realized_volatility_180d_2` and `beta90` → `beta_90d`.

- **timestamp:** this field is now an ISO 8601 string (`"2026-10-22T00:00:00.000Z"`), whereas Amberdata returned a number of milliseconds by default.
- **pairOne, pairTwo:** these fields are no longer repeated in the rows, since the pairs are the ones you requested.
- **log_return:** the daily log return, `ln(close / previous close)`, as with Amberdata's `returnOne`.
- **beta:** the beta of the second pair relative to the first, `cov(r1, r2) / var(r1)`, rounded to 2 decimals, where `r1` and `r2` are the daily log returns of the first and second pair.
- **realized_volatility:** these columns can be `null` on the first days of a series, before a pair's volatility history starts (2016-01-01 at the earliest).

Units: realized volatilities are annualised. Amberdata expressed them in percent (`31.71` = 31.71%), while Kaiko uses decimals (`0.3171` = 31.71%). Log returns, correlations and betas are plain numbers on both sides (for example, a return of `-0.0329` is -3.29%). Closes are expressed in each pair's quote asset.

6 Exchange & venue names

For this endpoint, the venue is a **spot exchange** (not a derivatives venue). Please map the identifier you send as follows:

Amberdata name	Kaiko code	Exchange
gdax	cbse	Coinbase
binance	binc	Binance
kraken	krkn	Kraken
bitstamp	stmp	Bitstamp
gemini	gmni	Gemini
okex	okex	OKX
bithumb	bthb	Bithumb
poloniex	polo	Poloniex
deribit	drbt	Deribit

Kaiko also publishes this endpoint on 17 additional spot exchanges: `arkm` `bnus` `bfnx` `gpsp` `btmt` `btmx` `bvav` `bull` `bbsp` `gate` `huob` `kcon` `lmax` `merc` `mexc` `okcn` `upbt`. Amberdata's codes (for example `gdax`) return a 400 error.

7 Will your values change?

Short answer

The calculation is the same: once realized volatilities are divided by 100, the values are directly comparable with Amberdata's. The only exception concerns OKX, Bithumb and Deribit (see Daily bars below).

- **Same methodology:** Amberdata and Kaiko both use log returns `ln(close / previous close)` and the Parkinson realized volatility over 30, 90 and 180 daily bars, annualised by √365. The correlation is the Pearson correlation of the two pairs' log returns, and the beta is `cov(r1, r2) / var(r1)`, rounded to 2 decimals, both over the trailing 30, 90 and 180 days. The series starts 180 days after the first common day and stops at the last complete day.
- **Daily bars:** Kaiko cuts every daily bar at 00:00 UTC, on all exchanges. On some venues, Amberdata used the exchange's own trading day instead: 16:00 UTC on OKX, 15:00 UTC on Bithumb and 08:00 UTC on Deribit. On these exchanges the bars cover a different 24-hour window, so the values may differ from Amberdata's, and each row is stamped 00:00 UTC.
- **Units:** only the realized volatilities change scale. Amberdata used percent, while Kaiko uses decimals (§5).
- **History:** the series starts 180 days after the first day both pairs trade on the requested exchange (for example on 2016-11-16 for BTC/USD against ETH/USD on Coinbase). Realized-volatility columns are `null` before a pair's volatility history starts (2016-01-01 at the earliest).
- **Precision:** Amberdata returned single-precision values, for example a beta of `1.2200000286102295` and a close of `81307.15625`. Kaiko returns `1.22` and `81307.16`, with prices exactly as traded and other values in double precision.

8 Before / after example

Request

Amberdata

```
GET https://api.amberdata.com
    /markets/derivatives/analytics
    /realized-volatility
    /correlation-beta
    ?exchange=gdax
    &pair=btc_usd
    &pair2=eth_usd
x-api-key: <your-amberdata-key>
```

Kaiko

```
GET https://api.kaiko.io
    /analytics/volatility
    /correlation-beta
    ?exchange=cbse
    &base_asset=btc
    &quote_asset=usd
    &base_asset_2=eth
    &quote_asset_2=usd
X-Api-Key: <your-kaiko-key>
```

Response (real responses, most recent day; closes and betas as returned, other values rounded, fields reordered)

Amberdata


```
{
  "status": 200,
  "title": "OK",
  "description": "Successful request",
  "payload": {
    "data": [ {
      "timestamp": 1792627200000,
      "pairOne": "btc_usd",
      "closeOne": 81307.15625,
      "returnOne": -0.032876,
      "realizedVolatility30One": 31.7066,
      "realizedVolatility90One": 37.0996,
      "realizedVolatility180One": 37.9117,
      "pairTwo": "eth_usd",
      "closeTwo": 2385.860107421875,
      "returnTwo": -0.035379,
      "realizedVolatility30Two": 45.1013,
      "realizedVolatility90Two": 52.2350,
      "realizedVolatility180Two": 52.5945,
      "correlation30": 0.927145,
      "correlation90": 0.889928,
      "correlation180": 0.886215,
      "beta30": 1.2200000286102295,
      "beta90": 1.2200000286102295,
      "beta180": 1.2200000286102295
    },
    … 3,032 more days
    ],
    "metadata": {
      "api-version": "2023-09-30"
    }
  }
}
```


Kaiko


```
{
  "data": [ {
    "timestamp": "2026-10-22T00:00:00.000Z",
    "close": 81307.16,
    "log_return": -0.032876,
    "realized_volatility_30d": 0.317066,
    "realized_volatility_90d": 0.370996,
    "realized_volatility_180d": 0.379117,
    "close_2": 2385.86,
    "log_return_2": -0.035379,
    "realized_volatility_30d_2": 0.451013,
    "realized_volatility_90d_2": 0.522350,
    "realized_volatility_180d_2": 0.525945,
    "correlation_30d": 0.927137,
    "correlation_90d": 0.889925,
    "correlation_180d": 0.886211,
    "beta_30d": 1.22,
    "beta_90d": 1.22,
    "beta_180d": 1.22
  },
  … 3,627 more days
  ],
  "meta": {
    "api_version": "2026-10-01",
    "count": 3628,
    "next_url": null,
    "url": "https://api.kaiko.io/analytics/
volatility/correlation-beta?
exchange=cbse&base_asset=btc&quote_asset=usd&base_
asset_2=eth&quote_asset_2=usd&api_version=2026-10-
01"
  }
}
```


Questions? Kaiko support · support@kaiko.com

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