Kaiko

MIGRATION GUIDE

Term Structures Richness

Amberdata → Kaiko

2026

www.kaiko.com

1 At a glance

What this endpoint gives you: Amberdata's **Term Structures Richness** becomes Kaiko's **Term Structure Richness**. For the underlying of an option, it returns one row per snapshot with the at-the-money implied volatility at the **7, 30, 60, 90 and 180-day** constant maturities, and **richness**, the mean short-over-long ratio of those volatilities over the ten tenor pairs. Above 1, short-dated volatility is richer than long-dated (backwardation); below 1, the curve slopes up (contango).

What changes for you

- You will call a new endpoint, `/analytics/volatility/term-structure-richness`, using your Kaiko API key in the `X-Api-Key` header (§2).
- The underlying is split into two lowercase parameters: `currency=BTC` becomes `base_asset=btc` and `quote_asset=usd`. Exchange codes also change, for example `deribit` becomes `drbt` (§3, §6).
- `timeInterval=hour` becomes `interval=1h`, and the accepted values are `1m`, `1h` and `1d` (§3).
- The window boundary changes: Kaiko returns `[start_time, end_time)`, while Amberdata returned `(startDate, endDate]`. With the same dates, you therefore get the row at the start of the window instead of the one at the end (§3).
- ATM volatilities are now returned as decimals, for example `0.3619` where Amberdata returned `36.19` (percent). `ratio`, `counter` and `richness` are unchanged.
- Field names now use snake_case, for example `atm30days` becomes `atm_30_days`, and `timestamp` becomes `value_time` (§5).

Coverage & distribution

Data type: Time series, one row per snapshot, newest first
Sampling: Every minute, hour or day (default), one snapshot each, not averaged
Metrics: ATM implied volatility at 7, 30, 60, 90 and 180 days · ratio, counter, richness
Exchanges: Deribit, OKX and Bybit options · 18 underlyings (§6)
Range: Up to 1, 90 or 3,660 days per request (minute, hour, day)
History: From October 2024 at the earliest, later for some underlyings (§6)
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/volatility/term-structures/richness`	`/analytics/volatility/term-structure-richness`
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	Same name, now with Kaiko codes (§6): `deribit` → `drbt`, `bybit` → `bbit`. Lowercase only.
`currency` (required)	`base_asset` + `quote_asset` (both required)	RENAMED	`BTC` → `btc` + `usd`, `BTC_USDC` → `btc` + `usdc` (§6). Lowercase only.
`startDate` (optional)	`start_time` (optional)	RENAMED	**Inclusive** (Amberdata: exclusive). ISO 8601 with a time zone.
`endDate` (optional)	`end_time` (optional)	RENAMED	**Exclusive** (Amberdata: inclusive). ISO 8601 with a time zone.
`timeInterval` (optional)	`interval` (optional)	RENAMED	`minute` → `1m`, `hour` → `1h`, `day` → `1d` (default). Amberdata's values return 400.
`timeFormat` (optional)	None	REMOVED	Kaiko times are always ISO 8601 strings, Amberdata's default format for this endpoint. You can simply remove it from your requests.
None	`sort` (optional)	NEW	`desc` (default, newest first, as Amberdata) or `asc`.
None	`api_version` (optional)	NEW	Lets you pin the response format. The default is `2026-10-01`.

Window, boundary and limits

- **Boundary:** Kaiko returns `[start_time, end_time)`, whereas Amberdata returned `(startDate, endDate]`. For 2026-10-19 to 2026-10-20, Kaiko returns the 2026-10-19 row at `1d` and 00:00 to 23:00 at `1h`, while Amberdata returned the 2026-10-20 row and 01:00 to 00:00. To get Amberdata's rows, simply move both dates forward by one interval.
- **Sampling, the same as Amberdata:** `1m` returns every minute, `1h` the snapshot at `hh:00`, and `1d` the one at 00:00 UTC.
- **Defaults and limits, the same as Amberdata:** without dates, you get the widest window of the interval, ending now: 1 day at `1m`, 90 days at `1h`, 3,660 days at `1d`. With only `end_time`, you get that window before it. With only `start_time`, the window runs until now. A wider window returns a 400 error. The whole window comes in one response, without pagination.
- **Time format:** please use ISO 8601 with a time zone, for example `2026-10-19T00:00:00.000Z`. Amberdata also accepted a date alone or a time without zone, but Kaiko returns a 400 error for both.
- **History:** from October 2024 at the earliest, later for some underlyings (§6).

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 snapshot.
`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` (snapshots).
None	`next_url`	NEW	Always `null`, since there is a single 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

- **Underlying not listed on the exchange:** Amberdata returned a 200 response with an empty `data` array. Kaiko returns a **404** error with the code `unknown_instrument` (for example "drbt does not serve doge-usd").
- **Uppercase or Amberdata codes:** Amberdata accepted any case. Kaiko returns a **400** error (for example `DRBT`, `BTC`, `deribit`).
- **Start equal to or after end:** Amberdata returned a 200 response with an empty `data` array. Kaiko returns a **400** error.
- **No data in the window:** 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 field	Kaiko field	Type	Change
`timestamp`	`value_time`	string	RENAMED
`exchange`	None	string	REMOVED
`currency`	None	string	REMOVED

Amberdata field	Kaiko field	Type	Change
`atm7days`	`atm_7_days`	number	RENAMED
`atm30days`	`atm_30_days`	number	RENAMED
`atm60days`	`atm_60_days`	number	RENAMED
`atm90days`	`atm_90_days`	number	RENAMED
`atm180days`	`atm_180_days`	number	RENAMED
`ratio`	`ratio`	number	IDENTICAL
`counter`	`counter`	integer	IDENTICAL
`richness`	`richness`	number	IDENTICAL

- **value_time** is the snapshot time, as an ISO 8601 string (`"2026-10-19T23:00:00.000Z"`), the same format as Amberdata's default for this endpoint.
- **exchange and currency** are no longer repeated in the rows: they are in your request and in `meta.url` .
- **atm_*_days** is `null` when that maturity has no usable volatility (no listed expiry that far, or a value that is not strictly positive): the surface is never extrapolated.
- **ratio** is the sum of the short-over-long ratios over the tenor pairs whose two volatilities are present (at most ten), **counter** the number of those pairs, and **richness** is `ratio / counter` , or `0` when no pair is present. This is the same as on Amberdata, including when tenors are missing (for example, `counter` is 6 or less on an underlying without 180-day expiries).

Units: ATM volatilities are annualised. Amberdata expressed them in percent (`36.19` = 36.19%), while Kaiko uses decimals (`0.3619` = 36.19%). `ratio` and `richness` have no unit and keep the same values.

6 Exchange & venue names

For this endpoint, the venue is an **options exchange**. Please map the exchange and the currency you send:

Amberdata exchange	Amberdata currency	Kaiko exchange	base_asset	quote_asset	History from
deribit	BTC	drbt	btc	usd	Oct 2024
deribit	ETH	drbt	eth	usd	Oct 2024
deribit	BTC_USDC	drbt	btc	usdc	Aug 2025
deribit	ETH_USDC	drbt	eth	usdc	Aug 2025
deribit	SOL_USDC	drbt	sol	usdc	Oct 2024
deribit	XRP_USDC	drbt	xrp	usdc	Oct 2024
deribit	AVAX_USDC	drbt	avax	usdc	Jan 2026
deribit	TRX_USDC	drbt	trx	usdc	Jan 2026
deribit	HYPE_USDC	drbt	hype	usdc	Jun 2026

Amberdata exchange	Amberdata currency	Kaiko exchange	base_asset	quote_asset	History from
okex	BTC	okex	btc	usd	Oct 2024
okex	ETH	okex	eth	usd	Oct 2024
bybit	BTC_USDT	bbit	btc	usdt	Jun 2025
bybit	ETH_USDT	bbit	eth	usdt	Jun 2025
bybit	SOL_USDT	bbit	sol	usdt	Jun 2025
bybit	XRP	bbit	xrp	usdt	Sep 2026
bybit	DOGE	bbit	doge	usdt	Sep 2026
bybit	MNT	bbit	mnt	usdt	Sep 2026
bybit	XAUT	bbit	xaut	usdt	Sep 2026

These are Kaiko's **options** exchange codes: Bybit is `bbit` here, not the spot code `bbsp`. On Amberdata, Bybit's XRP, DOGE, MNT and XAUT had no `_USDT` suffix, but on Kaiko their `quote_asset` is `usdt`, like the other Bybit underlyings. Amberdata's codes (for example `deribit`) return a 400 error.

Coverage as of today: these are the underlyings served today, and our teams are working to extend this coverage.

7 Will your values change?

Short answer

The calculation is the same: `ratio`, `counter` and `richness` keep their scale, and the ATM volatilities match once divided by 100. What changes is which rows a date range returns.

- **Same methodology:** both use the ATM volatility at the 7, 30, 60, 90 and 180-day constant maturities of the delta surface, and `richness` is the mean of the short-over-long ratios over the pairs present, with the same treatment of missing tenors and the same `0` when no pair is present.
- **Window boundary:** with the same dates, Kaiko returns the row at the start of the window instead of the one at the end (§3). To keep Amberdata's rows, simply move both dates forward by one interval.

8 Before / after example

Request

Amberdata

```
GET https://api.amberdata.com
    /markets/derivatives/analytics
    /volatility/term-structures
    /richness
    ?exchange=deribit
    &currency=BTC
    &startDate=2026-10-19T00:00:00
    &endDate=2026-10-20T00:00:00
    &timeInterval=hour
x-api-key: <your-amberdata-key>
```

Kaiko

```
GET https://api.kaiko.io
    /analytics/volatility
    /term-structure-richness
    ?exchange=drbt
    &base_asset=btc
    &quote_asset=usd
    &interval=1h
    &start_time=2026-10-19T00:00:00.000Z
    &end_time=2026-10-20T00:00:00.000Z
X-Api-Key: <your-kaiko-key>
```

Response (real responses, first two rows; values rounded, fields reordered. Same dates, different rows: Amberdata starts at 2026-10-20 00:00, end included; Kaiko at 2026-10-19 23:00, end excluded)

Amberdata


```
{
  "status": 200,
  "title": "OK",
  "description": "Successful request",
  "payload": {
    "data": [ {
      "timestamp": "2026-10-20T00:00:00.000Z",
      "exchange": "deribit",
      "currency": "BTC",
      "atm7days": 32.10,
      "atm30days": 36.18,
      "atm60days": 36.29,
      "atm90days": 36.68,
      "atm180days": 37.75,
      "ratio": 9.36,
      "counter": 10,
      "richness": 0.936
    }, {
      "timestamp": "2026-10-19T23:00:00.000Z",
      "exchange": "deribit",
      "currency": "BTC",
      "atm7days": 32.07,
      "atm30days": 36.19,
      "atm60days": 36.28,
      "atm90days": 36.67,
      "atm180days": 37.73,
      "ratio": 9.36,
      "counter": 10,
      "richness": 0.936
    },
    … 22 more hours, to 2026-10-19 01:00
    ],
    "metadata": {
      "api-version": "2023-09-30"
    }
  }
}
```


Kaiko


```
{
  "data": [ {
    "value_time": "2026-10-19T23:00:00.000Z",
    "atm_7_days": 0.3207,
    "atm_30_days": 0.3619,
    "atm_60_days": 0.3628,
    "atm_90_days": 0.3667,
    "atm_180_days": 0.3773,
    "ratio": 9.36,
    "counter": 10,
    "richness": 0.936
  }, {
    "value_time": "2026-10-19T22:00:00.000Z",
    "atm_7_days": 0.3223,
    "atm_30_days": 0.3626,
    "atm_60_days": 0.3626,
    "atm_90_days": 0.3665,
    "atm_180_days": 0.3775,
    "ratio": 9.38,
    "counter": 10,
    "richness": 0.938
  },
  … 22 more hours, to 2026-10-19 00:00
  ],
  "meta": {
    "api_version": "2026-10-01",
    "count": 24,
    "next_url": null,
    "url": "https://api.kaiko.io/analytics/
volatility/term-structure-richness?
exchange=drbt&base_asset=btc&quote_asset=usd&inter
val=1h&start_time=2026-10-19T00:00:00.000Z&end_tim
e=2026-10-20T00:00:00.000Z&api_version=2026-10-01"
  }
}
```