

INDEX GUIDELINE

BASE 5 INDEX

1.0

12 May 2020



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INTRODUCTION

This document (the "**GUIDELINE**") is to be used as a guideline with regard to the composition, calculation and maintenance of the Base 5 Index (the "**INDEX**"). Any amendments to the rules made to the **GUIDELINE** are approved by the OVERSIGHT COMMITTEE specified in Section 5.5. The **INDEX** is calculated, administered and published by Solactive AG ("**SOLACTIVE**") assuming the role as administrator (the "**INDEX ADMINISTRATOR**") under the Regulation (EU) 2016/1011 (the "**BENCHMARK REGULATION**" or "**BMR**"). The name "Solactive" is trademarked.

The text uses defined terms which are formatted with "SMALL CAPS". Such Terms shall have the meaning assigned to them as specified in Section 6 (Definitions).

The **GUIDELINE** and the policies and methodology documents referenced herein contain the underlying principles and rules regarding the structure and operation of the **INDEX**. **SOLACTIVE** does not offer any explicit or tacit guarantee or assurance, neither pertaining to the results from the use of the **INDEX** nor the level of the **INDEX** at any certain point in time nor in any other respect. **SOLACTIVE** strives to the best of its ability to ensure the correctness of the calculation. There is no obligation for **SOLACTIVE** – irrespective of possible obligations to issuers – to advise third parties, including investors and/or financial intermediaries, of any errors in the **INDEX**. The publication of the **INDEX** by **SOLACTIVE** does not constitute a recommendation for capital investment and does not contain any assurance or opinion of **SOLACTIVE** regarding a possible investment in a financial instrument based on this **INDEX**.



1. INDEX SPECIFICATIONS

1.1. SCOPE OF THE INDEX

Category	Description
Asset Class	Cryptocurrencies
Strategy	Basket of top five cryptocurrencies in terms of market capitalization including some specific rules for exclusions
Regional Allocation	n/a
Rebalancing Fee	n/a
Rebalancing Frequency	Quarterly

1.2. IDENTIFIERS AND PUBLICATION

The INDEX is published under the following identifiers:

Name	ISIN	Currency	Type	RIC	BBG ticker
BASE5 Index	DE000SL0AZW5	USD	PR	.BASE5	BASE5 Index

The INDEX is published on the website of the INDEX ADMINISTRATOR (www.solactive.com) and is, in addition, available via the price marketing services of Boerse Stuttgart GmbH and may be distributed to all of its affiliated vendors. Each vendor decides on an individual basis as to whether it will distribute or display the INDEX via its information systems.

Any publication in relation to the INDEX (e.g. notices, amendments to the GUIDELINE) will be available at the website of the INDEX ADMINISTRATOR: <https://www.solactive.com/news/announcements/>.

1.3. INITIAL LEVEL OF THE INDEX

The initial level of the INDEX on the 31/12/2018, the START DATE, is 100. Historical values from the 15/05/2020, the LIVE DATE, will be recorded in accordance with Article 8 of the BMR. Levels of the INDEX published for a period prior to the LIVE DATE have been back-tested.

1.4. PRICES AND CALCULATION FREQUENCY

The level of the INDEX is calculated on each CALCULATION DAY shortly after 5pm CET based on the IN 4.1 defined methodology.



1.5. LICENSING

Licenses to use the INDEX as the underlying value for financial instruments, investment funds and financial contracts may be issued to stock exchanges, banks, financial services providers and investment houses by SOLACTIVE.



2. INDEX SELECTION

On each SELECTION DAY, the INDEX ADMINISTRATOR will revise the composition of the INDEX.

In a first step, the INDEX ADMINISTRATOR determines the INDEX UNIVERSE in accordance with Section 2.1. The INDEX UNIVERSE comprises all those financial instruments which fulfill the INDEX UNIVERSE REQUIREMENTS (as specified in Section 2.1) and will constitute a starting pool from which the components of the INDEX will be selected. Based on this INDEX UNIVERSE, the new composition of the INDEX will be determined by applying the rules outlined in Section 2.2.

Each new INDEX COMPONENT will be assigned a weight as described in Section 2.3.

2.1. INDEX UNIVERSE REQUIREMENTS

The INDEX UNIVERSE is comprised of all financial instruments which fulfill the below requirements (the "**INDEX UNIVERSE REQUIREMENTS**");

The starting INDEX UNIVERSE is composed of the top 30 listed cryptocurrencies in terms of market capitalization as published by CMC reduced by identified MINORITY FORKS.

2.2. SELECTION OF THE INDEX COMPONENTS

Based on the INDEX UNIVERSE, the initial composition of the INDEX as well as any selection for an ordinary rebalance is determined on the SELECTION DAY in accordance with the following rules:

- 1) Get the starting INDEX UNIVERSE from 2.1.
- 2) Calculate the 30-day market capitalization average and rank the result
- 3) Remove STABLECOINS, EXCHANGE TOKENS
- 4) Remove XRP, BITCOIN CASH and BITCOIN SV if included
- 5) Remove all cryptocurrencies that are not supported by the CUSTODIAN
- 6) Remove all cryptocurrencies that are not traded on at least two of the TARGET EXCHANGES

2.3. WEIGHTING OF THE INDEX COMPONENTS

On each SELECTION DAY each INDEX COMPONENT is assigned a weight according to 30-day average of MARKET CAPITALIZATION.



3. REBALANCE

3.1. ORDINARY REBALANCE

In order to reflect the new selection of the INDEX COMPONENTS determined on the SELECTION DAY (in accordance with Section 2.1 and 2.2) the INDEX is adjusted on the REBALANCE DAY after CLOSE OF BUSINESS.

This is carried out by implementing the shares as determined on the FIXING DAY based on the weights calculated on the SELECTION DAY.

SOLACTIVE will publish any changes made to the INDEX COMPONENTS with sufficient notice before the REBALANCE DAY on the SOLACTIVE webpage under the section "Announcement", which is available at <https://www.solactive.com/news/announcements/>



4. CALCULATION OF THE INDEX

4.1. INDEX FORMULA

The INDEX is calculated everyday shortly after 5pm CET. To find the daily closing price, a VWAP is calculated for each eligible trading pair on each exchange covering the timeframe from 4pm CET to 5pm CET. These market pair and exchange specific VWAPs are weighted by their respective volume which results in the final VWAP for each of the five underlyings included in the index composition. The final VWAPs are all converted to USD using the BTC/USD VWAP reference price or the WM 4pm London EUR/USD fixing. The following algorithm is used:

- 1) Calculation of a BTC/USD VWAP reference price, needed for converting other xxx/BTC market pairs to USD
- 2) Calculation of all available xxx/USD VWAPs ex BTC
- 3) Calculation of all available xxx/EUR VWAPs in USD
- 4) Calculation of all available xxx/USDT VWAPs in USD
- 5) Calculation of final VWAP reference price for all underlyings
- 6) Check if any market pair and exchange specific VWAP deviates from the final VWAP in 5) exceeds the THRESHOLD
 - a. Outliers are detected and removed
 - b. 5) and 6) are repeated until no outliers are detected
- 7) Calculation of the index level following:
 - a. $I_t = \sum_{i=0}^4 VWAP_{i,final} * Shares_i$ where
 - i. I_t refers to the index level as of t
 - ii. $VWAP_{i,final}$ refers to the calculated VWAP in 5)
 - iii. $Shares_i$ refers to the fixed shares as outlined in 3.1)

4.2. ACCURACY

The level of the INDEX will be rounded to 2 decimal places.



4.3. RECALCULATION

SOLACTIVE makes the greatest possible efforts to accurately calculate and maintain its indices. However, errors in the determination process may occur from time to time for variety reasons (internal or external) and therefore, cannot be completely ruled out. SOLACTIVE endeavors to correct all errors that have been identified within a reasonable period of time. The understanding of “a reasonable period of time” as well as the general measures to be taken are generally depending on the underlying and is specified in the Solactive Correction Policy, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/correction-policy/>.

4.4. MARKET DISRUPTION

In periods of market stress SOLACTIVE calculates its indices following predefined and exhaustive arrangements as described in the Solactive Disruption Policy, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/disruption-policy/>. Such market stress can arise due to a variety of reasons, but generally results in inaccurate or delayed prices for one or more INDEX COMPONENTS. The determination of the INDEX may be limited or impaired at times of illiquid or fragmented markets and market stress.



5. MISCELLANEOUS

5.1. DISCRETION

Any discretion which may need to be exercised in relation to the determination of the INDEX (for example the determination of the INDEX UNIVERSE (if applicable), the selection of the INDEX COMPONENTS (if applicable) or any other relevant decisions in relation to the INDEX) shall be made in accordance with strict rules regarding the exercise of discretion or expert judgement.

5.2. METHODOLOGY REVIEW

The methodology of the INDEX is subject to regular review, at least annually. In case a need of a change of the methodology has been identified within such review (e.g. if the underlying market or economic reality has changed since the launch of the INDEX, i.e. if the present methodology is based on obsolete assumptions and factors and no longer reflects the reality as accurately, reliably and appropriately as before), such change will be made in accordance with the Solactive Methodology Policy, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/methodology-policy/>.

Such change in the methodology will be announced on the SOLACTIVE website under the Section "[Announcement](https://www.solactive.com/news/announcements/)", which is available at <https://www.solactive.com/news/announcements/>. The date of the last amendment of this INDEX is contained in this GUIDELINE.

5.3. CHANGES IN CALCULATION METHOD

The application by the INDEX ADMINISTRATOR of the method described in this document is final and binding. The INDEX ADMINISTRATOR shall apply the method described above for the composition and calculation of the INDEX. However, it cannot be excluded that the market environment, supervisory, legal and financial or tax reasons may require changes to be made to this method. The INDEX ADMINISTRATOR may also make changes to the terms and conditions of the INDEX and the method applied to calculate the INDEX that it deems to be necessary and desirable in order to prevent obvious or demonstrable error or to remedy, correct or supplement incorrect terms and conditions. The INDEX ADMINISTRATOR is not obliged to provide information on any such modifications or changes. Despite the modifications and changes, the INDEX ADMINISTRATOR will take the appropriate steps to ensure a calculation method is applied that is consistent with the method described above.



5.4. TERMINATION

SOLACTIVE makes the greatest possible efforts to ensure the resilience and continued integrity of its indices over time. Where necessary, SOLACTIVE follows a clearly defined and transparent procedure to adapt Index methodologies to changing underlying markets (see Section 5.2 "Methodology Review") in order to maintain continued reliability and comparability of the indices. Nevertheless, if no other options are available the orderly cessation of the INDEX may be indicated. This is usually the case when the underlying market or economic reality, which an index is set to measure or to reflect, changes substantially and in a way not foreseeable at the time of inception of the index, the index rules, and particularly the selection criteria, can no longer be applied coherently or the index is no longer used as the underlying value for financial instruments, investment funds and financial contracts.

SOLACTIVE has established and maintains clear guidelines on how to identify situations in which the cessation of an index is unavoidable, how stakeholders are to be informed and consulted and the procedures to be followed for a termination or the transition to an alternative index. Details are specified in the Solactive Termination Policy, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/termination-policy/>.

5.5. OVERSIGHT

An oversight committee composed of staff from SOLACTIVE and its subsidiaries (the "**OVERSIGHT COMMITTEE**") is responsible for decisions regarding any amendments to the rules of the INDEX. Any such amendment, which may result in an amendment of the GUIDELINE, must be submitted to the OVERSIGHT COMMITTEE for prior approval and will be made in compliance with the Methodology Policy, which is available on the SOLACTIVE website: <https://www.solactive.com/documents/methodology-policy/>.



6. DEFINITIONS

“AVERAGE DAILY VALUE TRADED” means, in respect of an INDEX COMPONENT, the sum of DAILY VALUE TRADED over the specified period divided by the number of TRADING DAYS that fall in the specified period.]

“BITCOIN CASH” means the cryptocurrency Bitcoin Cash.

“BITCOIN SV” means the cryptocurrency Bitcoin SV.

“BENCHMARK REGULATION” shall have the meaning as defined in Section “Introduction”.

“BMR” shall have the meaning as defined in Section “Introduction”.

“BTC” means the cryptocurrency Bitcoin

“BUSINESS DAY” s every weekday from Monday to Friday.

“CALCULATION DAY” is every weekday from Monday to Friday.

“CLOSE OF BUSINESS” is the calculation time of the closing level of the INDEX as outlined in Section 1.4.

“CMC” means CoinMarketCap. For further information please visit: www.coinmarketcap.com

“DAILY VALUE TRADED” means, in respect of an INDEX COMPONENT and a TRADING DAY, the product of (i) the CLOSING PRICE of such INDEX COMPONENT and (ii) the volume traded (measured as a number of shares) of such INDEX COMPONENT on the EXCHANGE during such TRADING DAY.]

“DATA PROVIDER” is CMC.

“EXCHANGE” is with respect to the INDEX and every INDEX COMPONENT, the respective exchange where the INDEX COMPONENT has its listing as determined in accordance with the rules in Section 2.

“EXCHANGE TOKENS” exist primarily on centralized exchanges. Exchange tokens typically come with a variety of benefits for holders, mostly in form of discounted trading fees and are designed to incentivize the usage of the platform.

“FIXING DAY” is the **SELECTION DAY**.

“GUIDELINE” shall have the meaning as defined in Section “Introduction”.

“INDEX” shall have the meaning as defined in Section “Introduction”.

“INDEX ADMINISTRATOR” shall have the meaning as defined in Section “Introduction”.

“INDEX COMPONENT” is each security reflected in the INDEX.

“INDEX COMPONENT REQUIREMENTS” shall have the meaning as defined in Section 2.2.

“INDEX CURRENCY” is the currency specified in the column “Currency” in the table in Section 1.2.

“INDEX UNIVERSE REQUIREMENTS” shall have the meaning as defined in Section 2.1.

“INDEX UNIVERSE” is the sum of all financial instruments which fulfill the INDEX UNIVERSE REQUIREMENTS.

“LIVE DATE” shall have the meaning as defined in Section 1.3.



“MINORITY FORK” means the result of a hard fork implemented by a group that does not follow the vote of the majority. The INDEX UNIVERSE is monitored for possible forks. If a MINORITY FORK is identified an OVERSIGHT COMMITTEE will decide if it gets removed from the INDEX UNIVERSE.

“OVERSIGHT COMMITTEE” shall have the meaning as defined in Section 5.5.

“REBALANCE DAY” is the last BUSINESS DAY of each quarter.

“SELECTION DAY” is 5 BUSINESS DAYS before the scheduled REBALANCE DAY, disregarding any potential change of the REBALANCE DAY.

“SOLACTIVE” shall have the meaning as defined in Section “Introduction”.

“STABLECOINS” are cryptoassets that attempt to reduce volatility by retaining a peg to something more stable such as the U.S. dollar.

“START DATE” shall have the meaning as defined in Section 1.3.

“TRADING DAY” is with respect to an INDEX COMPONENT included in the INDEX at the REBALANCE DAY and every INDEX COMPONENT included in the INDEX at the CALCULATION DAY immediately following the REBALANCE DAY (for clarification: this provision is intended to capture the TRADING DAYS for the securities to be included in the INDEX as new INDEX COMPONENTS with close of trading on the relevant EXCHANGE on the REBALANCE DAY) a day on which the relevant EXCHANGE is open for trading (or a day that would have been such a day if a market disruption had not occurred), excluding days on which trading may be ceased prior to the scheduled EXCHANGE closing time and days on which the EXCHANGE is open for a scheduled shortened period. The INDEX ADMINISTRATOR is ultimately responsible as to whether a certain day is a TRADING DAY.

The **“TRADING PRICE”** in respect of an INDEX COMPONENT and a TRADING DAY is the most recent published price at which the INDEX COMPONENT was traded on the respective EXCHANGE.

“THRESHOLD” is a limit of 2%.

“VWAP” means volume weighted average price.

“XRP” means the cryptocurrency Ripple.

“XXX/USD” means every market pair xxx that is quoted against USD.

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