

# INDEX GUIDELINE

Solactive US Large & Mid Cap Technology Index

Version 1.0

04 June 2019

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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 Index. Any changes made to the Guideline are initiated by the Committee specified in Section 1.6. The Index is calculated and published by Solactive AG. The name "Solactive" is trademarked.

It contains the underlying principles and rules regarding the structure and operation of the Solactive US Large & Mid Cap Technology Index (the "Index"). Solactive AG shall make every effort to implement the applicable regulations. Solactive AG does not offer any explicit or tacit guarantee or assurance, neither pertaining to the results from the use of the Index nor the Index value at any certain point in time nor in any other respect. The Index is merely calculated and published by Solactive AG and it strives to the best of its ability to ensure the correctness of the calculation. There is no obligation for Solactive AG – 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 AG does not constitute a recommendation for capital investment and does not contain any assurance or opinion of Solactive AG regarding a possible investment in a financial instrument based on this Index.



## 1 INDEX SPECIFICATIONS

- > The Solactive US Large & Mid Cap Technology Index (the "Index") is an Index of Solactive AG and is calculated and distributed by Solactive AG.
- > The Index intends to track the performance of the large and midcap segment covering approximately the largest 85% of the free-float market capitalization in the United States. All index components need to be classified in the Technology sector as defined by the TRBC Sector Classification.
- > The Indices are calculated as Price Return, Net Total Return and Total Return. Withholding tax rates are applied in the Net Total Return Indices. The Price Return and Total Return Indices do not apply withholding tax rates.
- > The Indices are published in USD.

### 1.1 SHORT NAME AND ISIN

The Index is distributed under the following identifiers and vendor codes:

Name	ISIN	Characteristic	Reuters	Bloomberg
Solactive US Large & Mid Cap Technology Index PR	DE000SLA7Z23	Price Return	.SOLUSITP	--
Solactive US Large & Mid Cap Technology Index NTR	DE000SLA7Z31	Net Total Return	.SOLUSITN	--
Solactive US Large & Mid Cap Technology Index TR	DE000SLA7Z49	Gross Total Return	.SOLUSITT	--

### 1.2 INITIAL VALUE

The Index is based on 1000 at the close of trading on the Start Date, May 8, 2006.

### 1.3 DISTRIBUTION

The Index is published via the price marketing services of Boerse Stuttgart AG and is distributed to all affiliated vendors. Each vendor decides on an individual basis as to whether it will distribute/display the Index via its information systems.

### 1.4 PRICES AND CALCULATION FREQUENCY

The value of the Index is calculated on each Calculation Day based on the prices on the respective Exchanges on which the Index Components are listed. The most recent prices of all Index Components are used. Prices of Index Components not listed in the Index Currency are translated using spot foreign



exchange rates quoted by Reuters. Should there be no current price available on Reuters, the most recent price or the Trading Price on Reuters for the preceding Trading Day is used in the calculation.

The Index is calculated every 15 seconds on every Calculation Day from 9:00 a.m. to 10:30 p.m., CET. In the event that data cannot be provided to Reuters or to the pricing services of Boerse Stuttgart AG, the Index cannot be distributed.

## 1.5 WEIGHTING

On each Selection Day, the new Index Components of the Solactive US Large & Mid Cap Technology Index are weighted according to Free Float Market Capitalization. The relevant float shares outstanding as of the Selection Day are used and are implemented as of the close on the Adjustment Day.

The shares are adjusted for corporate actions between the Selection Day and the Adjustment Day. This only relates to corporate actions that have a direct impact on price and shares (i.e. stock splits, stock dividends and rights issues).

## 1.6 OVERSIGHT

A Committee composed of staff from Solactive AG (the "Committee" or the "Index Committee") is responsible for decisions regarding the composition of the Index as well as any amendments to the rules.

Members of the Committee can recommend changes to the Guideline and submit them to the Committee for approval.

## 1.7 PUBLICATION

All specifications and information relevant for calculating the Index are made available on the <http://www.solactive.com> web page and sub-pages.

## 1.8 HISTORICAL DATA

Historical data will be maintained from the launch of the Index on June, 04 2019.

## 1.9 LICENSING

Licenses to use the Index as the underlying value for derivative instruments are issued to stock exchanges, banks, financial services providers and investment houses by Solactive AG.



## 2 COMPOSITION OF THE INDEX

### 2.1 SELECTION OF THE INDEX COMPONENTS

The initial composition of the Index as well as any ongoing adjustment are based on the following non-discretionary rules:

In a first step, all companies that are part of the Index Universe of the Solactive GBS United States Large & Mid Cap Index on a Selection Day are eligible for inclusion.

In a second step, companies must fulfill the following criteria:

- > Must be listed in the United States.
- > Must be classified in the Technology sector as defined by the TRBC Sector Classification.

### 2.2 ORDINARY ADJUSTMENT

The composition of the Index is adjusted at the close of the first Wednesday in February, May, August and November. The composition of the Solactive US Large & Mid Cap Technology Index is reviewed on the Selection Day and necessary changes are announced.

Solactive AG shall publish any changes made to the Index composition on the Solactive webpage with sufficient notice before the Adjustment Day.

### 2.3 EXTRAORDINARY ADJUSTMENT

An extraordinary adjustment, if applicable, is triggered and applied in compliance with the rules set forth in the [Solactive Guideline for Extraordinary Corporate Actions](#).



## 3 CALCULATION OF THE INDEX

### 3.1 INDEX FORMULA

The Index Value on a Calculation Day at the relevant time is calculated in accordance with the following formula:

$$Index_t = \sum_{i=1}^n \frac{(x_{i,t} \times p_{i,t} \times f_{i,t})}{D_t}$$

With:

- $Index_t$  = Index Value on Calculation Day  $t$   
 $x_{i,t}$  = Number of Index Shares of the Index Component  $i$  on Calculation Day  $t$   
 $p_{i,t}$  = Price of Index Component  $i$  on Calculation Day  $t$   
 $f_{i,t}$  = Foreign exchange rate to convert the Price of Index Component  $i$  on Calculation Day  $t$  into the Index Currency  
 $D_t$  = Divisor on Calculation Day  $t$

The initial Divisor on the Start Date is calculated according to the following formula:

$$D_t = \frac{\sum_{i=1}^n (p_{i,t} \times f_{i,t} \times x_{i,t})}{Initial\ Index\ Level}$$

After the close of trading on each Adjustment Day  $t$ , the new Divisor is calculated as follows:

$$D_{t+1} = \frac{\sum_{i=1}^n (p_{i,t} \times f_{i,t} \times x_{i,t+1})}{Index_t}$$

This Divisor is valid starting the immediately following Calculation Day.

### 3.2 ACCURACY

- > The value of the Index will be rounded to two decimal places.
- > The Number of Index Shares is rounded to integers.
- > Divisors will be rounded to six decimal places.

### 3.3 ADJUSTMENTS

The Indices are adjusted for systematic changes in prices due to corporate actions as soon as these become effective. This requires the new Number of Index Shares of the affected Index Component and the Divisor to be calculated on an ex-ante basis, i.e. based on close prices of the Index Components as of close prior to the respective ex-date.

The Index is adjusted for distributions, capital increases (rights issues) and stock splits.





This procedure ensures that the first ex quote can be properly reflected in the calculation of the Index. This ex-ante procedure assumes the general acceptance of the Index calculation formula as well as open access to the parameter values used. The calculation parameters are provided by the Index Calculator.

### 3.4 DIVIDENDS AND OTHER DISTRIBUTIONS

Regular cash distributions and special distributions are included in the Net Total Return and Total Return Indices (only special distributions are included in the Price Return indices). Distributions cause an adjustment of the Divisor. The new Divisor is calculated as follows:

$$D_{t+1} = D_t \times \frac{\sum_{i=1}^n (p_{i,t} \times f_{i,t} \times x_{i,t}) - (x_{i,t} \times y_{i,t} \times g_{i,t})}{\sum_{i=1}^n (p_{i,t} \times f_{i,t} \times x_{i,t})}$$

With:

- $x_{i,t}$  = Number of Index Shares of the Index Component  $i$  on Trading Day  $t$
- $y_{i,t}$  = Distribution of Index Component  $i$  with ex-date  $t + 1$  multiplied by the Dividend Correction Factor
- $p_{i,t}$  = Price of Index Component  $i$  on Trading Day  $t$
- $f_{i,t}$  = Foreign exchange rate to convert the Price of Index Component  $i$  on Trading Day  $t$  into the Index Currency
- $g_{i,t}$  = Foreign exchange rate to convert the amount of the distribution of Index Component  $i$  on Trading Day  $t$  into the Index Currency
- $D_t$  = Divisor on Trading Day  $t$
- $D_{t+1}$  = Divisor on Trading Day  $t + 1$

### 3.5 CORPORATE ACTIONS

#### 3.5.1 Principles

Following the announcement of the terms and conditions of a corporate action by a company included in the Index the Index Calculator determines whether such corporate action has a dilution, concentration or other effect on the price of the Index Component.

If this is the case, the Index Calculator shall make the necessary adjustments that are deemed appropriate in order to take into account the dilutive, concentrative or similar effect, and shall determine the date on which this adjustment shall come into effect.

#### 3.5.2 Capital increases

In the case of capital increases with ex-date  $t + 1$ , the Index is adjusted as follows:

$$x_{i,t+1} = x_{i,t} \times \frac{1 + B}{1}$$



With:

- $x_{i,t}$  = Number of Index Shares of the Index Component  $i$  on Trading Day  $t$   
 $x_{i,t+1}$  = Number of Index Shares of the Index Component  $i$  on Trading Day  $t + 1$   
 $B$  = Shares received for every share held

$$p_{i,t+1} = \frac{p_{i,t} + s \times B}{1 + B}$$

With:

- $p_{i,t}$  = Price of Index Component  $i$  on Trading Day  $t$   
 $p_{i,t+1}$  = Hypothetical price of Index Component  $i$  on Trading Day  $t + 1$   
 $s$  = Subscription Price in the Index Component currency  
 $B$  = Shares received for every share held

$$D_{t+1} = D_t * \frac{\sum_{i=1}^n (p_{i,t} \times f_{i,t} \times x_{i,t}) + \sum_{i=1}^n [(x_{i,t+1} \times p_{i,t+1} \times f_{i,t}) - (x_{i,t} \times p_{i,t} \times f_{i,t})]}{\sum_{i=1}^n (p_{i,t} \times f_{i,t} \times x_{i,t})}$$

With:

- $x_{i,t}$  = Number of Index Shares of the Index Component  $i$  on Trading Day  $t$   
 $x_{i,t+1}$  = Number of Index Shares of the Index Component  $i$  on Trading Day  $t + 1$   
 $p_{i,t}$  = Price of Index Component  $i$  on Trading Day  $t$   
 $p_{i,t+1}$  = Hypothetical price of Index Component  $i$  on Trading Day  $t + 1$   
 $f_{i,t}$  = Foreign exchange rate to convert the Price of Index Component  $i$  on Trading Day  $t$  into the Index Currency  
 $D_t$  = Divisor on Trading Day  $t$   
 $D_{t+1}$  = Divisor on Trading Day  $t + 1$

### 3.5.3 Share splits

In the case of share splits with ex-date on Trading Day  $t + 1$ , it is assumed that the prices change in ratio of the terms of the split. The new Number of Index Shares is calculated as follows:

$$x_{i,t+1} = x_{i,t} \times B$$

With:

- $x_{i,t}$  = Number of Index Shares of the affected Index Component on Trading Day  $t$   
 $x_{i,t+1}$  = Number of Index Shares of the affected Index Component on Trading Day  $t + 1$   
 $B$  = Shares after the share split for every share held before the split



### 3.5.4 Stock distributions

In the case of stock distributions with ex-date on Trading Day  $t + 1$ , it is assumed that the prices change according to the terms of the distribution. The new Number of Index Shares is calculated as follows:

$$x_{i,t+1} = x_{i,t} \times (1 + B)$$

With:

$x_{i,t}$  = Number of Index Shares of the Index Component  $i$  on Trading Day  $t$

$x_{i,t+1}$  = Number of Index Shares of the Index Component  $i$  on Trading Day  $t + 1$

$B$  = Shares received for every share held

## 3.6 MISCELLANEOUS

### 3.6.1 Recalculation

Solactive AG makes the greatest possible efforts to accurately calculate and maintain its indices. However, the occurrence of errors in the index determination process cannot be ruled out. In such cases Solactive AG adheres to its publicly available [Correction Policy](#).

### 3.6.2 Market Disruption

In periods of market stress Solactive AG calculates its indices following predefined and exhaustive arrangements set out in its publicly available [Disruption Policy](#).



## 4 DEFINITIONS

The "**Index Universe**" in respect of a Selection Day are all companies that are part of the Index Universe of the Solactive GBS United States Large & Mid Cap Index on a Selection Day.

The "**Index Component**" is each share currently included in the Index.

"**Number of Index Shares**" is, in respect of an Index Component and any given Business Day, the number of shares included in the Index. As of the quarterly Adjustment Days, the Number of Index Shares equals the float shares outstanding for any stock as of the preceding Selection Day - adjusted for any corporate actions between the Selection Day and the Adjustment Day. This only relates to corporate actions that have a direct impact on the price and shares (i.e. stock splits, stock dividends, and rights issues). The number of float shares is sourced from a data provider chosen by the Index Calculator.

"**Dividend Correction Factor**" is 1 for the Price Return and Total Return Indices. For the Net Total Return Indices, the Dividend Correction Factor is calculated as 1 minus the applicable withholding tax rate and/or other applicable tax rate prevalent in the respective country. The table can be accessed on the Solactive website at: [Withholding Tax Rates](#).

"**Extraordinary Event**" refers, in particular, to:

- > Delisting
- > Insolvency
- > a Merger
- > the Nationalization of a company
- > a Takeover Bid.

"**Delisting**" of an Index Component occurs when the Exchange announces, pursuant to the Exchange regulations, that the listing of, the trading in or the issuing of public quotes on the Index Component at the Exchange has ceased immediately or will cease at a later date, for whatever reason (provided the delisting is not because of a Merger or a Takeover Bid), and the Index Component is not immediately listed, traded or quoted again on an exchange, trading or listing system, acceptable to the Index Calculator.

"**Insolvency**" occurs with regard to an Index Component if (a) all shares of the respective issuer must be transferred to a trustee, liquidator, insolvency administrator or a similar public officer as result of a voluntary or compulsory liquidation, insolvency or winding-up proceedings or comparable proceedings affecting the issuer of the Index Components or (b) the holders of the shares of this issuer are legally enjoined from transferring the shares.

With regard to an Index Component, a "**Merger**" is

- (i) a change in the security class or a conversion of this share class that results in a transfer or an ultimate definite obligation to transfer all the shares in circulation to another legal person;
- (ii) a merger (either by acquisition or through forming a new structure) or a binding obligation on the part of the issuer to exchange shares with another legal person (except in a merger or share



exchange according to which the issuer of this Index Component is the acquiring or remaining company and which does not involve a change in security class or a conversion of all the shares in circulation);

- (iii) a takeover offer, exchange offer, other offer or another act of a legal person for the purposes of acquiring or otherwise obtaining from the issuer 100% of the shares issued that entails a transfer or the irrevocable obligation to transfer all shares (with the exception of shares that are held and controlled by the legal person); or
- (iv) a merger (either by acquisition or through forming a new structure) or a binding obligation on the part of the issuer of the share or its subsidiaries to exchange shares with another legal person, whereby the issuer of the share is the acquiring or remaining company and which does not involve a change in the class or a conversion of the all shares issued, but the shares in circulation directly prior to such an event (except for shares held and controlled by the legal person) represent in total less than 50% of the shares in circulation directly subsequent to such an event.

**"Merger Date"** is the date on which a Merger is concluded or the date specified by the Index Calculator if such a date cannot be determined in accordance with the law applicable to the Merger.

**"Nationalization"** is a process whereby all shares or the majority of the assets of the issuer of the shares are nationalized or are expropriated or otherwise must be transferred to public bodies, authorities or institutions.

**"Takeover Bid"** is a bid to acquire, an exchange offer or any other offer or act of a legal person that results in the related legal person acquiring as part of an exchange or otherwise more than 10% and less than 100% of the voting shares in circulation from the issuer of the Index Component or the right to acquire these shares, as determined by the Index Calculator based on notices submitted to public or self-regulatory authorities or other information considered by the Index Calculator to be relevant.

The **"Exchange"** is, in respect of the Index and every Index Component, the respective primary exchange where the Index Component has its primary listing. The Committee may decide to declare a different stock exchange the "Exchange" for trading reasons, even if the company is only listed there via a Stock Substitute.

**"Start Date"** is May 8, 2017.

A **"Stock Substitute"** includes in particular, American Depository Receipts (ADR) and Global Depository Receipts (GDR).

With regard to an Index Component (subject to the provisions given above under "Extraordinary Events") the **"Trading Price"** in respect of a Trading Day is the closing price on this Trading Day determined in accordance with the Exchange regulations. If the Exchange has no closing price for an Index Component, the Index Calculator shall determine the Trading Price and the time of the quote for the share in question in a manner that appears reasonable to it.

A **"Trading Day"** is in relation to the Index or an Index Component a Trading Day on the Exchange (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 normal Exchange closing time. The Index Calculator is ultimately responsible



as to whether a certain day is a Trading Day with regard to the Index or an Index Component or in any other connection relating to this document.

The "**Index Calculator**" is Solactive AG or any other appropriately appointed successor in this function.

The "**Index Currency**" is USD.

The "**Free Float Market Capitalization**" is with regard to each of the securities in the Index on a Selection Day the share class-specific Free Float Market Capitalization for any security in the Index Universe. It is calculated as the multiplication of the shares outstanding in Free Float (as sourced from data vendors) with the Trading Price of the share class as of the respective Selection Day.

A "**Business Day**" is any weekday from Monday through Friday.

A "**Calculation Day**" is every weekday Monday to Friday. A day on which the New York Stock Exchange is not open for general business is not a Calculation Day.

The "**Adjustment Day**" is the close of the first Wednesday in February, May, August, and November. If that day is not an Eligible Rebalancing Day, the Adjustment Day will be the following Eligible Rebalancing Day.

The "**Selection Day**" is the Business Day 20 Business Days before the respective GBS Adjustment Day in February, May, August, and November.

The "**Eligible Rebalancing Day**" is each day that is an Eligible GBS Rebalancing Day and a Trading Day on each of the Exchanges of current and new Index Components.

The "**GBS Adjustment Day**" is the first Wednesday in February, May, August, and November. If that day is not an Eligible GBS Rebalancing Day, the GBS Adjustment Day will be the following Eligible GBS Rebalancing Day.

An "**Eligible GBS Rebalancing Day**" is each day that is a Trading Day at the New York Stock Exchange, the London Stock Exchange, the EUREX Exchange, and the Tokyo Stock Exchange.

A "**Market Disruption Event**" occurs if

1. one of the following events occurs or exists on a Trading Day prior to the opening quotation time for an Index Component:
  - A) trading is suspended or restricted (due to price movements that exceed the limits allowed by the Exchange or an Affiliated Exchange, or for other reasons):
    - 1.1. across the whole Exchange; or
    - 1.2. in options or futures contracts on or with regard to an Index Component or an Index Component that is quoted on an Affiliated Exchange; or
    - 1.3. on an Exchange or in a trading or quotation system (as determined by the Index Calculator) in which an Index Component is listed or quoted; or
  - B) an event that (in the assessment of the Index Calculator) generally disrupts and affects the opportunities of market participants to execute on the Exchange transactions in respect of a share included in the Index or to determine market values for a share included in the Index or to execute



on an Affiliated Exchange transaction with regard to options and futures contracts on these shares or to determine market values for such options or futures contracts.

2. trading on the Exchange or an Affiliated Exchange is ceased prior to the “**Normal Exchange Closing Time**”, which is the time at which the Exchange or an Affiliated Exchange is normally closed on working days without taking into account after-hours trading or other trading activities carried out outside the normal trading hours. An exception to this classification as a Market Disruption Event is where the early cessation of trading is announced by the Exchange or Affiliated Exchange on this Trading Day at least one hour before
  - 2.1. the actual closing time for normal trading on the Exchange or Affiliated Exchange on the Trading Day in question or, if earlier.
  - 2.2. the closing time (if given) of the Exchange or Affiliated Exchange for the execution of orders at the time the quote is given.
3. a general moratorium is imposed on banking transactions in the country in which the Exchange is resident if the above-mentioned events are material in the assessment of the Index Calculator, whereby the Index Calculator makes its decision based on those circumstances that it considers reasonable and appropriate.



## 5 CHANGES IN CALCULATION METHOD

The application by the Index Calculator of the method described in this document is final and binding. The Index Calculator 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, financial or tax reasons may require changes to be made to this method. The Index Calculator 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 Calculator is not obliged to provide information on any such modifications or changes. Despite the modifications and changes, the Index Calculator will take the appropriate steps to ensure a calculation method is applied that is consistent with the method described above.



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