



**ROBO  
GLOBAL**

DEFINING THE UNIVERSE OF ROBOTICS  
& AUTOMATION FOR INVESTORS

# **Rules for the Management of the ROBO Global® Set of Indices**

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## **1. Introduction**

- 1.1. These Guidelines are to be used with respect to the composition, calculation and management of each of the below ROBO Global® Index Series.
- 1.2. The benchmark administrator for each index series is ROBO Global® LLC.
- 1.3. ROBO Global® has designed each of the ROBO Global® Index Series to be compliant with the IOSCO Principles for Financial Benchmarks.
- 1.4. ROBO Global®'s compliance statement regarding the IOSCO Principles for Financial Benchmarks is available on request, and from [www.roboglobal.com](http://www.roboglobal.com).
- 1.5. The Index Series represented in this document are as follows:
- 1.6. ROBO Global® Robotics, Automation and AI Index Series (section 8)
- 1.7. ROBO Global® Artificial Intelligence Index Series (section 9)
- 1.8. ROBO Global® Volatility Target Index Series (section 10)

## 2. Index Management

### Index Management Committee

- 2.1. The Index Management Committee is responsible for the management and implementation of these rules, for their continuing fitness for purpose, and therefore for any periodic amendments thereto. It is also responsible for overseeing the actions of the index Calculation Agent, and in the event of the rules not providing a clear process for the management of any situation, for determining the process to be followed, if appropriate after reference to the Index Consultative Group and / or Calculation Agent.
- 2.2. The committee is composed of a chairman appointed by ROBO Global® LLC, and of ROBO Global® LLC staff. Additionally, there is independent expert representation from the index industry, and one staff member from the index Calculation Agent is invited to attend in a non-voting capacity.
- 2.3. Members of the Index Management Committee may at any time recommend changes to these Rules (including the Index construction criteria) by submitting any proposed changes for consideration and approval in advance of the next quarterly Scheduled Determination Date. Except in exceptional circumstances new rules and rules adjustments will become effective after the following review, and after being announced via the methods outlined in paragraph 2.4.
- 2.4. Following approval by the Index Management Committee, such changes shall be implemented by way of an update to these rules, which shall be published on [www.roboglobal.com](http://www.roboglobal.com).
- 2.5. The Index Management Committee convenes on a quarterly basis between the collection date for review determination data and the implementation of each quarterly review.

### Index Consultative Group

- 2.6. The Index Consultative Group is convened by ROBO Global® LLC on a regular basis, to provide independent advice into the indices' design, fitness for purpose, and into the practical implementation of the rules. Its members are appointed by ROBO Global® LLC and are drawn from those with particular knowledge of and expertise in each index series' area of focus, and from users of the indices.

### Calculation Agent

- 2.7. The index Calculation Agent carries out the day-to-day calculation and publishing of the indices and the management and implementation of day-to-day corporate actions.
- 2.8. ROBO Global® is responsible for carrying out the periodic reviews of the indices, which are implemented by the index Calculation Agent.
- 2.9. Where an extraordinary event occurs or is occurring, the Calculation Agent shall be responsible for implementing the procedures described in Section 5 of these rules.
- 2.10. Where an index calculation error occurs, the Calculation Agent is responsible for informing the Index Management Committee at the earliest possible opportunity, and for following the rules and procedures outlined in the ROBO Global® Index Recalculation Policy.

### **3. Classification of Companies**

#### **The ROBO Global® Database**

- 3.1. ROBO Global® created and maintains a unique and broad database of companies across the globe who have a portion of their business and revenue associated with the focus area of one or more of the index series’.

#### **ROBO Global® Industry Classification**

- 3.2. In the absence of a benchmark industry classification system for identifying companies engaged in the areas of focus for each index series, the ROBO Global® Industry Classification was created by ROBO Global® in consultation with industry experts and strategic advisors.
- 3.3. The eligibility process for inclusion in the ROBO Global® Industry Classification is detailed in the “ROBO Global® Industry Classification” document available from ROBO Global®.
- 3.4. ROBO Global® observes and may exclude companies if there is an unacceptable risk that the company contributes to or is responsible for serious human rights violations, severe environmental damage, and other particularly serious violations of fundamental ethical norms, including the production of weapons that violate fundamental humanitarian principles through their normal use.
- 3.5. Please refer to [www.roboglobal.com](http://www.roboglobal.com) for more information relating to the ROBO Global® Industry Classification.

## 4. Index Reviews

- 4.1. The indices are reviewed according to the schedule specified for each index.
- 4.2. From the determination date until the rebalance date, the number of shares used for each index constituent is fixed and not changed unless a corporate event occurs.<sup>1</sup>
- 4.3. The new constituent composition and index weightings are applied on the corresponding rebalance date.
- 4.4. The proposed composition of each index and *indicative* weightings of each of the index' constituents (including details relating to the companies that are being added to/removed from the Index) shall be available to index licensees from ROBO Global® seven calendar days prior to the scheduled rebalance date.
- 4.5. The Calculation Agent shall publish all details relating to the rebalance of the Index (i.e. the *actual* weights) on the business day after each relevant rebalance date.

### **Constituent eligibility (all indices)**

- 4.6. All companies listed within the ROBO Global® Industry Classification pass through a series of eligibility screens before they can become Index Constituents. The selection of the Index Constituents from the list of companies classified within the ROBO Global® Industry Classification is carried out by ROBO Global® in accordance with the following predetermined rules and objective criteria:
- 4.7. Companies not publicly traded on an eligible exchange are ineligible for inclusion in the indices.
- 4.8. The list of eligible exchanges is maintained by and can be revised by the Index Management Committee. Any such revisions to the list of eligible exchanges shall be confirmed at a quarterly Index Management Committee meeting, effective no sooner than at the next occurring determination date (i.e. with a minimum of one quarter's notice), and published on [www.roboglobal.com](http://www.roboglobal.com).
- 4.9. Size Requirement - Companies which are not currently an Index Component with a Market Capitalization of less than the *New Component Size Requirement* as at the relevant Determination Date are ineligible for inclusion in the indices. Companies which are currently an Index Component with a Market Capitalization of less than the *Existing Component Size Requirement* at the relevant Determination Date are ineligible for inclusion in the indices.
- 4.10. Liquidity Requirement - Companies which are not currently an Index Component, with a trailing 3-month composite average daily value traded at the relevant Determination Date that is less than the *New Component Liquidity Requirement*, are ineligible for inclusion in

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<sup>1</sup> Please note: certain corporate events, such as cash distributions, can affect all constituents' shares figures.

the indices. Companies which are currently an Index Component, with a trailing 3-month average daily value traded at the relevant Determination Date that is less than the *Liquidity Removal Level*, are ineligible for inclusion in the indices. Constituent companies whose trailing 3-month average daily value traded at the relevant Determination Date is below the *Liquidity Warning Level* at two consecutive reviews are ineligible for inclusion in the indices.

- 4.11. In addition to the requirements above, each specific index series may have additional eligibility requirements as outlined in their respective schedules.

#### **UCITS Indices**

- 4.12. The weighting schemes used for the various ROBO Global® UCITS indices aim to ensure UCITS compliance at each index review. Should their application to the UCITS indices appear at some future time unlikely to achieve compliance, the Index Management Committee will amend the rules to resolve this, following the procedures and notifying users of those changes as indicated in paragraphs 2.4 and section 6.

## 5. Calculation of the Indices

### Index formula

- 5.1. Each index closing level on business day  $t$ ,  $Index_t$ , is calculated in accordance with the following formula:

$$Index_t = \sum_{i=1}^{N_{t-1}} x_{t-1}^i * p_t^i * FX_t^i \quad (\text{Equation 1})$$

Where:

- $x_{t-1}^i$  The number of shares of index constituent  $i$  on business day  $t - 1$
- $p_t^i$  Trading price of index constituent  $i$  on business day  $t$
- $FX_t^i$  1 (one) unit of the local currency of index constituent  $i$  converted into the index currency on business day  $t$  at the official WM/Reuters rate as published at 4pm UK time.
- $N_{t-1}$  The index constituents existing as of business day  $t - 1$

### Accuracy

- 5.2. The value of each index will be rounded to two decimal places.
- 5.3. The number of shares of index constituents will be rounded to six decimal places.
- 5.4. Trading prices will be rounded to four decimal places.

### Extraordinary Events

- 5.5. Indices shall be adjusted for systematic changes in prices, once these become effective. This requires the new number of shares of the affected index constituent to be calculated on an ex-ante basis. Following the Calculation Agent's decision, the relevant index is adjusted for distributions, capital increases, rights issues, splits, par value conversions and capital reductions as outlined below. This procedure ensures that the first ex quote can be properly reflected in the calculation of the relevant 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 Calculation Agent.
- 5.6. The trading price for an affected index constituent on the day an extraordinary event comes into effect, is the last available market price for this index constituent quoted on the exchange on the day the event occurred (or, if a market price is not available for the day the event came into effect, the last available market price quoted on the exchange on a day specified as appropriate by the Calculation Agent) and this price is used as the trading price of the particular index constituent until the next rebalance date.
- 5.7. When an index constituent's trading has been halted, the Calculation Agent shall hold the affected index constituent at its most recent closing price until trading is resumed or it is officially delisted. Determination for removal will be made on a case-by-case basis and based upon reasonable likelihood of trade resumption and likelihood of residual value returned to stock holders. The Calculation Agent will consult with the Index Management Committee when determining its fair value. Should removal be deemed appropriate,

announcement will be made at zero value (for system purposes the actual value used is .0001, in local currency).

- 5.8. Stocks that are scheduled for inclusion in/removal from the index but which are halted or suspended prior to rebalance will have their scheduled updates postponed and will be monitored for trade resumption. Once trading resumes, these securities changes will be announced and will have their positions updated accordingly. Depending on the nature of the halt or suspension, the Calculation Agent may, after consultation with the Index Management Committee, decide to delete the affected security from the index.
- 5.9. In the event of the insolvency of an index constituent, the index constituent shall remain in the index until the next rebalance date. As long as a market price for the affected index constituent is available on a business day, this shall be applied as the trading price for the relevant index constituent on the relevant business day, as determined in each case by the Calculation Agent. If a market price is not available on a business day, the trading price for this index constituent is set to zero per above. The Calculation Agent may, after consultation with the Index Management Committee, also decide to eliminate the respective index constituent at an earlier point in time prior to the next rebalance date if there is no reasonable expectation that the Index Constituent will emerge from Insolvency in the near future.
- 5.10. Table 1 below summarizes **potential** events for which adjustments may be made by the Calculation Agent.

**Table 1**

<b>Event</b>	<b>Adjustment</b>	<b>Adjustment Treatment</b>
Cash/Special or Extraordinary Distributions	Yes	The distribution is reinvested in that stock.
Return on Capital	Yes	The distribution is reinvested in that stock.
Stock Distribution	Yes	Where shareholders receive "B" new shares for every "A" share held, the Number of Shares is adjusted by multiplying the original Number of Shares by the quotient of (a) the sum of A and B <i>divided</i> by (b) A.
Stock Split	Yes	Where shareholders receive "B" new shares for every "A" share held, the Number of Shares is adjusted by multiplying the original Number of Shares by the quotient of B <i>divided</i> by A.
Share Repurchase	No	No Adjustment.
Acquisition or Merger (Target Company is in the Index)	Yes	If acquired share is Delisted (as defined below), the cash proceeds from the acquisition are reinvested proportionally (based on the current weight) among the other Index Constituents. Where shares are issued, such shares are deemed to be sold on the date of issuance and cash proceeds reinvested as described in the preceding sentence.

Acquisition or Merger (Acquirer is in the Index)	No	If the surviving company is already an Index Constituent, it is retained in the Index.
Acquisition or Merger (both Acquirer and Target Company are in the Index)	Yes	<p>If the acquired Index Constituent is Delisted (as defined below), they will be removed from the Index on the effective date as announced by the Calculation Agent. The Index is subject to further adjustments in accordance with the following cases.</p> <ul style="list-style-type: none"> <li>• In case of a cash acquisition, the weight of the target company based on its last close price will be distributed pro rata across the remaining Index Constituents.</li> <li>• In case of a stock acquisition, the shares of the acquiring / surviving company will be increased according to the stock terms.</li> <li>• In case of a cash &amp; stock acquisition, the cash portion will be reinvested pro rata across the remaining Index Constituents. The shares of the acquiring / surviving company will be increased according to the stock terms.</li> </ul>

- 5.11. If a stock that is a constituent of an index is delisted, the cash value of that stock's position in the index, based on the latest available market price prior to the delisting, is reinvested proportionally (based on the current weights) among the other index constituents.
- 5.12. Note that if an index constituent is both (i) affected by an event listed in Table 1 and (ii) delisted, such constituent will be adjusted as described in Table 1. An index constituent will be deemed to be "delisted" when the exchange (as defined under "Market Disruption Events" below) for such constituent announces that the constituent ceases (or will cease) to be listed, traded or publicly quoted on the exchange for any reason and is not immediately re-listed, re-traded or re-quoted on any of the affiliated exchanges (or their respective successors); if the constituent is immediately re-listed, re-traded or re-quoted on any such exchange or quotation system, such exchange or quotation system shall be deemed to be the exchange and the stock will not be deemed to be delisted.
- 5.13. For events not listed in Table 1 above, the Calculation Agent may make adjustments if it determines that the event could have a diluting or concentrative effect on the theoretical value of the underlying stock and would not otherwise be accounted for in the relevant index. Any such adjustments are publicly announced in advance wherever practicable.

### Distributions

- 5.14. Distributions paid by index constituents are automatically re-invested into the relevant net total return index subject to the relevant withholding tax rate.
- 5.15. Any distributions shall trigger an adjustment of the number of shares of the corresponding index constituent. The new number of shares is calculated as follows:

$$x_t^i = x_{t-1}^i * \frac{p_{t-1}^i}{p_{t-1}^i - D_t^i} \quad (\text{Equation 2})$$

Where:

$x_t^i$	The Number of Shares of Index Constituent <i>i</i> on Business Day <i>t</i>
$p_{t-1}^i$	Trading Price of Index Constituent <i>i</i> on Business Day <i>t</i> – 1
$D_t^i$	Net Distribution Rate of Index Constituent <i>i</i> on Business Day <i>t</i>

### Corporate actions

- 5.16. Following the announcement by an index constituent of the terms and conditions of a corporate action, the Calculation Agent shall determine whether such corporate action has a dilution, concentration or other effect on the price of the index constituent.
- 5.17. Should such an effect be deemed to have occurred, the Calculation Agent shall make the necessary adjustments to the affected index constituent and/or the formula for calculating the relevant index and/or to other terms and conditions of this document that is deemed appropriate in order to take into account the dilution, concentration or other effect and shall determine the date on which this adjustment shall come into effect.
- 5.18. For corporate actions not described herein, or combinations of different types of corporate events and other exceptional cases, the Calculation Agent reserves the right to determine the appropriate implementation method. Where practicable, the Calculation Agent will inform the Index Management Committee of its intentions prior to implementation, and in all cases will inform them of the actions taken.

### Capital increases

- 5.19. Should there be a capital increase (from the index constituent's own resources or through cash contributions), the new number of shares shall be calculated as follows:

$$\text{i) } x_t^i = x_{t-1}^i * \frac{p_{t-1}^i}{p_{t-1}^i - rB_{t-1}^i} \quad (\text{Eq.3.1}) \quad \text{ii) } rB_{t-1}^i = \frac{p_{t-1}^i - B - N}{BV + 1} \quad (\text{Eq. 3.2})$$

Where:

$x_t^i$	Number of Shares of Index Constituent $i$ on the day of the distribution
$p_{t-1}^i$	Trading Price on the day prior to ex-date
$rB_{t-1}^i$	Calculated value of rights issue
$B$	Price of rights issue
$N$	Distribution disadvantage
$BV$	Subscription ratio
$B = 0$	If capital is increased from the company's own resources.

The last Distribution paid or the announced Distribution proposal is applied as the Distribution disadvantage.

### Share splits and par value conversions

- 5.20. Should there be share splits and par value conversions it is assumed that the prices shall change in ratio to the number of shares or to the par values. The new number of shares shall be calculated as follows:

$$x_t^i = x_{t-1}^i * \frac{N_{t-1}^i}{N_t^i} \quad (\text{Equation 4})$$

Where:

$N_t^i$	New par value of security class $i$ (or new Number of Shares) on Business Day $t$
$x_t^i$	Number of Shares of affected Index Constituent $i$ on Business Day $t$

### Spin-offs

- 5.21. In case of a spin-off affecting an index component, the spun-off company is added to the relevant index based on the terms of the spin-off on the effective date and the initial company remains in its index. If the spun-off company is not eligible to remain in the Index, it will be removed from the Index after the first trading day and its weight will be reinvested back to the parent company.
- 5.22. In the event that a spun-off company cannot be added for any other reason, the Calculation Agent will inform the Index Management Committee.

### Calculation of the Indices in the event of a Market Disruption Event

- 5.23. One of more of the indices may not be calculated in the event of a market disruption event. If the market disruption event continues for a sustained period, the Calculation Agent calculates the Index value, taking into account the market conditions prevailing at this point in time, the last quoted trading price for each of the index constituents as well as any other conditions that it deems relevant for calculating a fair value index value.

## **6. Exceptions to these Rules**

- 6.1. The Calculation Agent shall apply the method described above for the composition and calculation of the indices. However it cannot be excluded that the market environment, supervisory, legal, financial or tax reasons may require unforeseen changes to be made to this method. Any such changes will be made in conjunction with the Index Management Committee and if appropriate, after consultation with the Index Consultative Group.
- 6.2. The ROBO Global® Index Management Committee may prescribe changes to the selection criteria and other rules governing the indices and the method applied to calculate the indices, which it deems to be necessary and desirable in order to prevent material errors or to remedy, correct or supplement the rules currently described in these Guidelines.
- 6.3. ROBO Global® and the Calculation Agent shall ensure that any amendments to the methodology are updated and published as soon as possible after any changes to the indices are implemented and shall notify all persons who have licensed the use of the indices as far in advance of such implementation as reasonably practicable.
- 6.4. Despite modifications and changes, the Calculation Agent will take the appropriate steps to ensure a calculation method is applied that is consistent with the method described above.

## 7. Data Publication

- 7.1. The composition of the indices as well as the respective weightings of index constituents, which shall be published on a retrospective basis in respect of each rebalance date on the business day immediately following the next rebalance date, is made available on [www.roboglobal.com](http://www.roboglobal.com).

### Distribution

- 7.2. The indices are published via the price marketing services of Boerse Stuttgart AG and are distributed to all ROBO Global® - affiliated vendors. Each vendor determines whether they will distribute/display the index data via their respective information systems.

### Prices and calculation frequency

- 7.3. The indices are calculated on each business day<sup>2</sup> based on the prices on the respective exchanges relevant to each index constituent. At any given point during the period in which the Index is calculated, the last traded prices of all index constituents are used. If there is no last traded price for an index constituent on a business day, the most recent last traded price on Reuters for the preceding business day is used in the calculation.
- 7.4. Index values are also calculated and published on non-business weekdays, however users should bear in mind the impact on index values caused by significant markets not being open.
- 7.5. Where applicable, exchange prices of index constituents not listed in the index currency are converted using spot foreign exchange rates quoted by Reuters. Daily index closing levels are calculated using Reuters / WM Company closing spot rates as fixed at 4pm London time.
- 7.6. Unless otherwise noted, the indices are *real-time* indices. The ROBO Global® indices are calculated according to the schedule specified for each index. All are calculated every 15 seconds. In the event that data cannot be provided to the pricing services of Boerse Stuttgart AG, the publication of index values and any distribution thereof may be delayed.
- 7.7. The proposed resolution of any incorrect calculation of the Index will be reported to the Index Management Committee who will discuss the appropriate resolution with the Calculation Agent by following the rules and procedures outlined in the ROBO Global® Index Recalculation Policy.

### Licensing

- 7.8. Licenses to use the indices as the underlying value for derivative instruments may be issued to stock exchanges, banks, financial services providers and investment houses by ROBO Global®.

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<sup>2</sup> Defined in Appendices

## 8. ROBO Global® Robotics, Automation and AI Index Series

### Index Series Description

- 8.1. Robotics, Automation and Artificial Intelligence (AI) are firmly set on a long-term growth trajectory, supported by a unique combination of accelerating technological advances and powerful macro factors. Rapid developments in technologies such as computing and artificial intelligence, motion control, machine vision and learning, enable an increasingly broad range of applications throughout the global economy. Meanwhile, aging demographics and the emergence of a new, enormous class of increasingly demanding consumers will continue to drive efforts to boost productivity and quality across markets. The ROBO Global® Robotics, Automation and AI Index Series' objective is to provide investors with comprehensive, transparent and diversified benchmarks representing the global value chain of robotics, automation and enabling technologies. There are two primary sets of indices, one using a modified equal weight scheme, and the other a modified float-adjusted market capitalisation scheme. Both rebalance on a quarterly basis to respond to changes in the market, in technological and competitive landscapes, and to maintain diversification. Doing so ensures that the indices capture the growth trend while minimizing company-specific risk. The indices are designed and maintained by ROBO Global® LLC.
- 8.2. The ROBO Global® Industry Classification is used within this index series to identify sub-sectors of high relevance and high growth to the Robotics, Automation and AI Industry. The Classification will expand over time. These sub-sectors are intended to capture companies throughout the “value chain”. The value chain includes not just the manufacture and deployment of robots and automated systems but also enabling technologies such as sensing, computing, software, motion control, amongst others.
- 8.3. The index series comprises the following indices:

Index	Calculation Method	Calc. Curr.	Symbol / ISIN	History	Live Calculation
<b>ROBO GLOBAL® PRIMARY INDEX SERIES</b>					
ROBO Global® Robotics and Automation Price Index	Price Return	USD	.ROBO DE000SLA02U8	31.12.2002	02.08.2013
	Net Total Return	USD	.ROBOTR DE000SLA02V6	31.12.2002	02.08.2013
ROBO Global® Robotics and Automation UCITS Index	Net Total Return	USD	.ROBOT DE000SLA4RB7	31.12.2003	16.06.2014
	Price Return	USD	.ROBOTPR DE000SLA5RB4	31.12.2003	25.06.2014

Index	Calculation Method	Calc. Curr.	Symbol / ISIN	History	Live Calculation
<b>ROBO GLOBAL® REVENUE INDEX SERIES</b>					
ROBO Global® Robotics, Automation and AI High Revenue Index	Price Return	USD	ROBOHRPR DE000SLA5CG5	Contact ROBO Global	31.12.2017
	Net Total Return	USD	ROBOHRNR DE000SLA5CH3	Contact ROBO Global	31.12.2017
ROBO Global® Robotics, Automation and AI Growing Revenue Index	Price Return	USD	ROBOGRPR DE000SLA5CJ9	Contact ROBO Global	31.12.2017
	Net Total Return	USD	ROBOGRNR DE000SLA5CK7	Contact ROBO Global	31.12.2017
ROBO Global® Robotics, Automation and AI Technology Index	Price Return	USD	ROBOTEPR DE000SLA5CL5	Contact ROBO Global	31.12.2017
	Net Total Return	USD	ROBOTENR DE000SLA5CQ4	Contact ROBO Global	31.12.2017
ROBO Global® Robotics, Automation and AI Applications Index	Price Return	USD	ROBOAPPR DE000SLA5CR2	Contact ROBO Global	31.12.2017
	Net Total Return	USD	ROBOAPNR DE000SLA5CS0	Contact ROBO Global	31.12.2017

Index	Calculation Method	Calc. Curr.	Symbol / ISIN	History	Live Calculation
<b>ROBO GLOBAL® HEDGED INDEX SERIES</b>					
ROBO Global® Robotics, Automation and AI Hedged to Yen Index	Price Return	JPY	ROBOYEPR DE000SLA5P01	Contact ROBO Global	31.12.2017
	Net Total Return	JPY	ROBOYENR DE000SLA5P19	Contact ROBO Global	31.12.2017
ROBO Global® Robotics and Automation UCITS Hedged to Yen Index	Price Return	JPY	ROBOYNPR DE000SLA2W39	19.12.2003	01.12.2016
	Net Total Return	JPY	.ROBOYN DE000SLA2W21	19.12.2003	01.12.2016
ROBO Global® Robotics, Automation and AI Hedged to USD Index	Price Return	USD	ROBOUSPR DE000SLA5PY0	Contact ROBO Global	31.12.2017
	Net Total Return	USD	ROBOUSNR DE000SLA5PZ7	Contact ROBO Global	31.12.2017
ROBO Global® Robotics, Automation and AI Hedged to EUR Index	Price Return	EUR	ROBOECPR DE000SLA5P43	Contact ROBO Global	31.12.2017
	Net Total Return	EUR	ROBOECNR DE000SLA5P50	Contact ROBO Global	12.12.2017
ROBO Global® Robotics, Automation and AI Hedged to GBP Index	Price Return	GBP	ROBOGBPR DE000SLA5P27	Contact ROBO Global	31.12.2017
	Net Total Return	GBP	ROBOGBNR DE000SLA5P35	Contact ROBO Global	31.12.2017

Index	Calculation Method	Calc. Curr.	Symbol / ISIN	History	Live Calculation
<b>ROBO GLOBAL® CURRENCY INDEX SERIES</b>					
ROBO Global® Robotics, Automation and AI EUR Index	Price Return	EUR	ROBOEUR ROBOEUR00000	Contact ROBO Global	31.12.2017
	Net Total Return	EUR	ROBOEURTR ROBOEURTR000	Contact ROBO Global	31.12.2017
ROBO Global® Robotics, Automation and AI GBP Index	Price Return	GBP	ROBOGBP ROBOGBP00000	Contact ROBO Global	31.12.2017
	Net Total Return	GBP	ROBOGBPTR ROBOGBPTR000	Contact ROBO Global	31.12.2017
ROBO Global® Robotics, Automation and AI JPY Index	Price Return	JPY	ROBOJPY ROBOJPY00000	Contact ROBO Global	31.12.2017
	Net Total Return	JPY	ROBOJPYTR ROBOJPYTR000	Contact ROBO Global	31.12.2017
ROBO Global® Robotics, Automation and AI UCITS Yen Index	Net Total Return	JPY	ROBOYNUI ROBOTJPY1234	Contact ROBO Global	31.12.2017
	Price Return	JPY	ROBOYNPRUI ROBOTPRJPY1	Contact ROBO Global	12.12.2017

Index	Calculation Method	Calc. Curr.	Symbol / ISIN	History	Live Calculation
<b>ROBO GLOBAL® REGIONAL INDEX SERIES</b>					
ROBO Global® Robotics, Automation and AI North America Index	Price Return	USD	ROBONAPR DE000SLA5CT8	Contact ROBO Global	31.12.2017
	Net Total Return	USD	ROBONANR DE000SLA5CU6	Contact ROBO Global	31.12.2017
ROBO Global® Robotics, Automation and AI World ex-North America Index	Price Return	USD	ROBOXAPR DE000SLA5CV4	Contact ROBO Global	31.12.2017
	Net Total Return	USD	ROBOXANR DE000SLA5CW2	Contact ROBO Global	31.12.2017
ROBO Global® Robotics, Automation and AI EMEA Index	Price Return	USD	ROBOEAPR DE000SLA5CX0	Contact ROBO Global	31.12.2017
	Net Total Return	USD	ROBOEANR DE000SLA5CY8	Contact ROBO Global	31.12.2017
ROBO Global® Robotics, Automation and AI Japan Index	Price Return	USD	ROBOJNPR DE000SLA5CZ5	Contact ROBO Global	31.12.2017
	Net Total Return	USD	ROBOJNNR DE000SLA5C06	Contact ROBO Global	31.12.2017
ROBO Global® Robotics, Automation and AI Asia Index	Price Return	USD	ROBOASPR DE000SLA5C14	Contact ROBO Global	31.12.2017
	Net Total Return	USD	ROBOASNR DE000SLA5C22	Contact ROBO Global	31.12.2017
ROBO Global® Japan Robotics and Automation UCITS Index	Net Total Return	JPY	.ROBOJP DE000SLA1DW9	31.12.2003	15.10.2015
	Price Return	JPY	.ROBOJPPR DE000SLA1DX7	31.12.2003	15.10.2015

### **Index Descriptions**

- 8.4. ROBOT, ROBOTPR, ROBO, and ROBOTR benchmark the entire value chain of robotics, automation, and enabling technologies across 12 sub sectors and over 15 geographies.
- 8.5. ROBOYN and ROBOYNPR benchmark the entire value chain of robotics, automation, and enabling technologies across 12 sub sectors and over 15 geographies, with returns hedged to YEN.
- 8.6. ROBOJP and ROBOJPPR focus on ROBOT members that are listed on eligible Japanese exchanges.
- 8.7. The ROBO Global® Robotics, Automation and AI High Revenue Index benchmarks well established leading Robotics, Automation and AI companies, whose core business is directly related to those activities. Typically, they operate on a global scale.
- 8.8. The ROBO Global® Robotics, Automation and AI Growing Revenue Index benchmarks companies that have a distinct portion of their business and revenue derived from Robotics, Automation and AI, and the potential to grow within this space through innovation and/or market adoption of their products and/or services.
- 8.9. The ROBO Global® Robotics, Automation and AI Technology, and ROBO Global® Robotics, Automation and AI Applications Indices focus on companies whose Robotics, Automation and AI activities are focussed in those respective sectors.
- 8.10. The ROBO Global® Robotics and Automation UCITS Hedged to Yen Index benchmarks the performance of the ROBO Global Robotics and Automation UCITS Price Index, hedged into Yen. The ROBO Global Robotics and Automation UCITS Yen Index benchmarks the performance of the ROBO Global® Robotics and Automation UCITS Index, calculated in Yen.
- 8.11. The ROBO Global® Robotics, Automation & AI Hedged to Yen, Hedged to USD, Hedged to EUR and Hedged to GBP Indices benchmark the performance of the ROBO Global® Robotics and Automation Price Index, hedged into those currencies. The ROBO Global® Robotics, Automation and AI EUR, GBP, and JPY Indices benchmark the performance of the ROBO Global® Robotics and Automation Price Index, calculated in those currencies.
- 8.12. The ROBO Global® Robotics, Automation and AI North America, World Ex-North America, EMEA, Asia and Japan Indices benchmark Robotics, Automation and AI companies whose domicile is within those regions.

### **Review Schedule**

- 8.13. The indices in the ROBO Global® Robotics, Automation and AI Index Series are reviewed quarterly in March, June, September and December, according to the following schedule:
- ROBO Global® Industry Classifications are fixed two days before the first Friday of March, June, September or December.
  - Constituent market data is taken from the close of business on the determination date, which is 14 calendar days before the third Friday of March, June, September or December.
  - Reviews are implemented on the rebalance date, which is the third Friday of March, June, September or December.

### **Constituent Selection**

- 8.14. The ROBO Global® Robotics and Automation Price Index comprises a minimum of 65 index constituents with at least 15 “bellwether” stocks and 45 “non-bellwether” stocks. The Index Management Committee retains the right to reduce the eligibility requirements above if fewer than this number are available, until the required number of constituents are eligible.
- 8.15. The ROBO Global® Robotics and Automation Price Index has a maximum of 200 index constituents with a cap of 80 “bellwether” stocks and 120 “non-bellwether” stocks. If a greater number are eligible, the relevant number of constituents from each category are selected in reverse order of market capitalisation.
- 8.16. If the above constraints are met, the ROBO Global® Robotics and Automation Price Index comprises all remaining eligible constituents.
- 8.17. Constituents of the remaining ROBO Global® Indices are selected automatically from the constituent stocks of the ROBO Global® Robotics and Automation Price Index (“the universe index”), as per the following table:

Index (Both price & net total return indices)	Constituent Eligibility	Weighting Method	New Component Size Requirement	New Component Liquidity Requirement
			Existing Component Size Requirement	Liquidity warning level
				Liquidity removal level
<b>ROBO GLOBAL® PRIMARY INDEX SERIES</b>				
ROBO Global® Robotics and Automation Price Index	As described in 8.14 – 8.16 above.	Modified equal weighting	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000 \$700,000
ROBO Global® Robotics and Automation UCITS Index	This index comprises the same constituents as the universe index.	Modified equal weighting	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000 \$700,000

<b>ROBO GLOBAL® REVENUE INDEX SERIES</b>				
ROBO Global® Robotics, Automation and AI High Revenue Index	This index comprises those universe index constituents classified as “Bellwether.”	Modified float-adjusted capitalisation (5% cap)	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000 \$700,000
ROBO Global® Robotics, Automation and AI Growing Revenue Index	This index comprises those universe index constituents classified as “Non-Bellwether.”	Modified float-adjusted capitalisation (5% cap)	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000 \$700,000
ROBO Global® Robotics, Automation and AI Technology Index	This index comprises those universe index constituents classified within the “Technology” sector.	Modified float-adjusted capitalisation (5% cap)	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000 \$700,000
ROBO Global® Robotics, Automation and AI Applications Index	This index comprises those universe index constituents classified within the “Applications” sector.	Modified float-adjusted capitalisation (5% cap)	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000 \$700,000

<b>ROBO GLOBAL® REGIONAL INDEX SERIES</b>				
ROBO Global® Robotics, Automation and AI North America Index	This index comprises those constituents of the universe index whose domicile is within the region.	Modified float- adjusted capitalisation (5% cap)	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000
ROBO Global® Robotics, Automation and AI World ex-North America Index	This index comprises those constituents of the universe index whose domicile is within the region.	Modified float- adjusted capitalisation (5% cap)	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000
ROBO Global® Robotics, Automation and AI EMEA Index	This index comprises those constituents of the universe index whose domicile is within the region.	Modified float- adjusted capitalisation (5% cap)	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000
ROBO Global® Robotics, Automation and AI Japan Index	This index comprises those constituents of the universe index whose domicile is within the region.	Modified float- adjusted capitalisation (5% cap)	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000
ROBO Global® Robotics, Automation and AI Asia Index	This index comprises those constituents of the universe index whose domicile is within the region.	Modified float- adjusted capitalisation (5% cap)	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000
ROBO Global® Japan Robotics and Automation UCITS Index	This index comprises those constituents of the universe index whose domicile is within the region.	Modified equal weighting	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000

### Constituent Weights – Modified Equal Weight Indices

- 8.18. Stocks identified as “bellwether” within the ROBO Global® Industry Classification have a fixed cumulative allocation of 40% within these indices at each review;
- 8.19. Stocks identified as “non-bellwether” within the ROBO Global® Industry Classification have a fixed cumulative allocation of 60% within these indices at each review;
- 8.20. Within each of the “bellwether” and “non-bellwether” segments of these indices, stocks are equally weighted, subject to the requirements of rules 8.21 to 8.31.
- 8.21. For securities listed on either the C1 Equity or C2 Equity exchanges (China A shares), the initial weight will be further multiplied by the “China A Inclusion Factor,” with excess weight being redistributed equally across the non-China A shares in the appropriate segment. As of the publication date of this document, the “China A Inclusion Factor” is defined to be 25%. The Index Management Committee will review this factor on a periodic basis and update it as appropriate.

### **Calculation of ROBO Stake and ROBO Holding Cap Factor**

- 8.22. The passive management of funds against indices can lead to scenarios where large funds tracking indices can own significant percentages of constituent companies. ROBO Global® wishes to avoid the potential adverse effects of these scenarios. Therefore, where necessary, individual stock weights will be constrained at review to limit the maximum cumulative holding in any constituent by ROBO Global®-licenced funds, to approximately 5% of the available shares of any individual constituent, i.e. excluding non-freely-floating shares and accounting for any limits that exist on the foreign ownership of each constituent's shares.
- 8.23. The index committee will establish, at each review, a "total assets estimate" representing the dollar value of the total assets under management in products linked to indices in the ROBO Global® Robotics, Automation and AI Series.
- 8.24. The "total assets estimate" will be calculated as 110% of the total identified AUM within ROBO Global® ETFs and funds, at the review determination date. In the event the "total assets estimate" is less than \$100 million USD, the "total assets estimate" will be defined to be \$100 million USD.
- 8.25. A proposed dollar-valued "ROBO Stake" for each constituent of the ROBO Global® Robotics and Automation Price Index will be calculated by multiplying its initial constituent percentage weight within the ROBO Global® Robotics and Automation Index (which is dependent upon whether it is identified as "bellwether" or "non-bellwether") by the "total assets estimate".
- 8.26. Where the proposed "ROBO Stake" is greater than 5% of that constituent's free float (market cap multiplied by percentage of available shares) its proposed "ROBO Stake" will be reduced so that it represents 5% of that constituent's free float.
- 8.27. The total "ROBO Stake" removed from "bellwether" constituents will be allocated equally across all remaining "bellwether" constituents.
- 8.28. The total "ROBO Stake" removed from "non-bellwether" constituents will be allocated equally across all remaining "non-bellwether" constituents.
- 8.29. The percentage adjustment required (where necessary) to reduce a "ROBO Stake" to 5% , reduce a constituent in line with the "China A Inclusion Factor," or to effect the reallocation of reduced ROBO Stakes to other constituents will be defined as that constituent's "ROBO Holding Cap Factor". This factor is applied to each constituent's index shares figure.
- 8.30. Each constituent's ultimate index weight is calculated as the percentage that its "ROBO Stake" represents of the sum of all constituents' "ROBO Stakes."
- 8.31. ROBO Holding Cap factors are not calculated for each individual index. The ROBO Holding Cap Factor calculated for the ROBO Global® Robotics and Automation Price Index is used in each index within the ROBO Global® Robotics, Automation and AI Index Series.

### Constituent Weights – Modified Float-Capitalisation Weight Indices

- 8.32. These indices use a modified float-adjusted market capitalisation weighting methodology.
- 8.33. Constituent weights within each index are calculated by applying each constituent’s ROBO Holding Cap Factor (as defined in 8.22 to 8.31) to its float-adjusted capitalisation, subject to a maximum individual constituent weight of 5%.

### Calculation Schedule

- 8.34. The Indices are calculated as described in section 7 according to the following schedule:

Index (Both price & net total return indices)	Calculation Period
<b>ROBO GLOBAL® PRIMARY INDEX SERIES</b>	
ROBO Global® Robotics and Automation Index	8:00am to 4:30pm Eastern (USA) time
ROBO Global® Robotics and Automation UCITS Index	8:00am to 4:30pm, London (UK) time
<b>ROBO GLOBAL® REVENUE INDEX SERIES</b>	
ROBO Global® Robotics, Automation and AI High Revenue Index	8:00am London (UK) time to 4:30pm Eastern (USA) time
ROBO Global® Robotics, Automation and AI Growing Revenue Index	8:00am London (UK) time to 4:30pm Eastern (USA) time
ROBO Global® Robotics, Automation and AI Technology Index	8:00am London (UK) time to 4:30pm Eastern (USA) time
ROBO Global® Robotics, Automation and AI Applications Index	8:00am London (UK) time to 4:30pm Eastern (USA) time
<b>ROBO GLOBAL® HEDGED INDEX SERIES</b>	
ROBO Global® Robotics, Automation and AI Hedged to Yen Index	8:00am to 4:30pm, London (UK) time
ROBO Global® Robotics and Automation UCITS Hedged to Yen Index	8:00am to 4:30pm, London (UK) time
ROBO Global® Robotics, Automation and AI Hedged to USD Index	8:00am to 4:30pm Eastern (USA) time
ROBO Global® Robotics, Automation and AI Hedged to EUR Index	8:00am to 4:30pm Eastern (USA) time
ROBO Global® Robotics, Automation and AI Hedged to GBP Index	8:00am to 4:30pm, London (UK) time
<b>ROBO GLOBAL® CURRENCY INDEX SERIES</b>	
ROBO Global® Robotics, Automation and AI EUR Index	8:00am to 4:30pm Eastern (USA) time
ROBO Global® Robotics, Automation and AI GBP Index	8:00am to 4:30pm, London (UK) time
ROBO Global® Robotics, Automation and AI JPY Index	8:00am to 4:30pm, London (UK) time
ROBO Global® Robotics, Automation and AI UCITS Yen Index	8:00am to 4:30pm, London (UK) time
<b>ROBO GLOBAL® REGIONAL INDEX SERIES</b>	
ROBO Global® Robotics, Automation and AI North America Index	8:00am to 4:30pm Eastern (USA) time
ROBO Global® Robotics, Automation and AI World ex-North America Index	8:00am London (UK) time to 4:30pm Eastern (USA) time
ROBO Global® Robotics, Automation and AI EMEA Index	8:00am London (UK) time to 4:30pm Eastern (USA) time
ROBO Global® Robotics, Automation and AI Japan Index	9:00am to 3:00pm Tokyo (Japan) time
ROBO Global® Robotics, Automation and AI Asia Index	8:00am London (UK) time to 4:30pm Eastern (USA) time
ROBO Global® Japan Robotics, Automation and AI UCITS Index	8:00am to 4:30pm, London (UK) time

## 9. ROBO Global® Artificial Intelligence Index Series

### Index Series Description

- 9.1. The ROBO Global® Artificial Intelligence Index Series' objective is to provide investors with comprehensive, transparent and diversified benchmarks representing the global value chain of Artificial Intelligence technologies. The indices are designed and maintained by ROBO Global® LLC.
- 9.2. The ROBO Global® Industry Classification is used within this index series to identify sub-sectors of high relevance and high growth to the Artificial Intelligence Industry. The Industry Classification will expand over time.
- 9.3. The index series comprises the following indices:

Index	Calculation Method	Calc. Curr.	Symbol / ISIN	History	Live Calculation
ROBO Global® Artificial Intelligence Index	Price Return	USD	.THNQ DE000SLA64P8	Contact ROBO Global®	22.08.2018
	Net Total Return	USD	.THNQTR DE000SLA64Q6	Contact ROBO Global®	22.08.2018

### Index Descriptions

- 9.4. ROBOAI and ROBOAIR benchmark companies that have a distinct portion of their business and revenue derived from the field of Artificial Intelligence, and the potential to grow within this space through innovation and/or market adoption of their products and/or services.

### Review Schedule

- 9.5. The indices in the ROBO Global® Artificial Intelligence Index Series are reviewed quarterly in March, June, September and December, according to the following schedule:
- ROBO Global® Industry Classifications are fixed two days before the first Friday of March, June, September or December.
  - Constituent market data is taken from the close of business on the determination date, which is 14 calendar days before the third Friday of March, June, September or December.
  - Reviews are implemented on the rebalance date, which is the third Friday of March, June, September or December.

### Constituent Selection

- 9.6. Stocks classified within the ROBO Global® Industry Classification as exposed to the Artificial Intelligence theme are given an "AI Score," comprised of factors representing the levels of revenue the company receives from Artificial Intelligence activities, levels of investment the firm makes in Artificial Intelligence, and the market positioning of the firm

in the Artificial Intelligence universe. Each stock’s “AI Score” will range from 1 to 100 and will be reviewed on a regular basis. Each company’s “AI Score” will be provided to the Index Management Committee by the ROBO Global® Industry Classification Committee in advance of each determination date as defined in 9.5.

- 9.7. Companies whose “AI Score” is greater than or equal to 50, and who meet all other eligibility requirements, are eligible for inclusion in the ROBO Global® Artificial Intelligence Index series.
- 9.8. The ROBO Global® Artificial Intelligence Price Index comprises a minimum of 50 index constituents. The Index Management Committee retains the right to reduce the eligibility requirements above if fewer than this number are available, until the required number of constituents are eligible.
- 9.9. The ROBO Global® Artificial Intelligence Price Index has a maximum of 100 index constituents. If a greater number are eligible, the relevant number of constituents are selected by order of the highest “AI Score”.
- 9.10. If the above constraints are met, the ROBO Global® Artificial Intelligence Price Index comprises all remaining eligible constituents.

Index (Both price & net total return indices)	Constituent Eligibility	Weighting Method	New Component Size Requirement	New Component Liquidity Requirement
			Existing Component Size Requirement	Liquidity warning level
				Liquidity removal level
ROBO Global® Artificial Intelligence Price Index	As described in 9.6 to 9.10 above.	Modified “AI Score” weighting	\$200,000,000	\$1,000,000
			\$100,000,000	\$850,000
				\$700,000

### Constituent Weights

- 9.11. Constituents are weighted according to their “AI Score” (as described in 9.6). Each constituent’s weight is calculated by dividing its “AI Score” by the sum of all available “AI Scores” in the eligible universe, subject to the requirements of rules 9.12 to 9.20.
- 9.12. The initial weight of constituents listed on either the C1 Equity or C2 Equity exchanges (China A shares) will be further multiplied by the “China A Inclusion Factor,” with excess weight being redistributed on a pro-rata basis across the remaining constituents. As of the date of publication of this document, the “China A Inclusion Factor” is 25%. The Index Management Committee will review and update this factor on a periodic basis.

### Calculation of ROBO Stake and ROBO Holding Cap Factor

- 9.13. The passive management of funds against indices can lead to scenarios where large funds tracking indices can own significant percentages of constituent companies. ROBO Global® wishes to avoid the potential adverse effects of these scenarios. Therefore, where necessary, individual stock weights will be constrained at review to limit the maximum cumulative holding in any constituent by ROBO Global®-licenced funds, to approximately 5% of the available shares of any individual constituent, i.e. excluding non-freely-floating shares and accounting for any limits that exist on the foreign ownership of each constituent’s shares.
- 9.14. The index committee will establish, at each review, a “total assets estimate” representing the dollar value of the total assets under management in products linked to indices in the ROBO Global® Artificial Intelligence Index Series.
- 9.15. The “total assets estimate” will be calculated as 110% of the total identified AUM within ROBO Global® ETFs and funds, at the review determination date. In the event the “total assets estimate” is less than \$100 million USD, the “total assets estimate” will be defined to be \$100 million USD.
- 9.16. A proposed dollar-valued “ROBO Stake” for each constituent of the ROBO Global® Artificial Intelligence Index will be calculated by multiplying its initial constituent percentage weight within the ROBO Global® Artificial Intelligence Index by the “total assets estimate”.
- 9.17. Where the proposed “ROBO Stake” is greater than 5% of that constituent’s free float (market cap multiplied by percentage of available shares) its proposed “ROBO Stake” will be reduced so that it represents 5% of that constituent’s free float.
- 9.18. The total “ROBO Stake” removed from constituents will be allocated on a pro-rata basis across all remaining constituents, subject to the same 5% cap.
- 9.19. The percentage adjustment required (where necessary) to reduce a “ROBO Stake” to 5%, reduce a constituent in line with the “China A Inclusion Factor,” or to effect the reallocation of reduced ROBO Stakes to other constituents will be defined as that constituent’s “ROBO Holding Cap Factor”. This factor is applied to each constituent’s index shares figure.
- 9.20. Each constituent’s ultimate index weight is calculated as the percentage that its “ROBO Stake” represents of the sum of all constituents’ “ROBO Stakes.”

### Calculation Schedule

- 9.21. The Indices are calculated as described in section 7 according to the following schedule:

Index (Both price & net total return indices)	Calculation Period
ROBO Global® Artificial Intelligence Index	8:00am London (UK) time to 4:30pm Eastern (USA) time

## 10. ROBO Global® Volatility Target Index Series

### Index Series Description

- 10.1. The ROBO Global® Volatility Target Index Series comprises indices that combine a variable exposure to an underlying ROBO Global® Index and exposure to a hypothetical money market position, with the aim of achieving an annualized index volatility of less than or equal to a given target percentage.
- 10.2. The index series comprises the following indices:

Index	Calc. Curr.	Symbol / ISIN	Target Index	Money Market Rate	History
			Volatility Target	Synthetic Dividend	Live Calculation
ROBO Global® Robotics and Automation 18% Volatility Target Index	USD	.ROBOVT18	.ROBOTR	3-month USD LIBOR rate	11.04.2012
		DE000SLA56Y6	18%	5%	10.07.2018

### Index Descriptions

- 10.3. The ROBOVT18 index is an excess return index that mimics an unfunded variable exposure to the ROBO Global® Robotics and Automation Total Return Index (ROBOTR) with the aim of achieving an annualized realized volatility of less than or equal to 18%. The exposure is notionally funded by borrowing at the 3-month USD LIBOR rate, and a notional synthetic dividend is also removed from the return.

### Index Composition

- 10.4. Each index is composed of a position in the target index and a money market position (as defined in 10.2) or money market funding cost.

### Index Calculation

- 10.5. The index is calculated on each business day (as defined in section 7 and the appendices) in accordance with the following formula:

The index level on the index start date is set to 100.

$$IL_0 = 100$$

On every business day following the index start date:

$$IL_t = IL_{vcd} * \left( 1 + Exp_{vcd} * \left( \frac{targetIndex_t}{targetIndex_{vcd}} - 1 \right) - Exp_{vcd} * rate_{vcd} * \frac{DC_{vcd,t}}{360} - synthDiv * \frac{DC_{vcd,t}}{365} \right)$$

with:

$IL_t$  = Index Level as of business day t

$targetIndex_t$  = The closing level of the target index as of business day t

$Exp_{vcd}$  = The exposure to the target index on the last volatility calculation day as defined further below

$rate_{vcd}$  = Level of the money market rate, expressed as a percentage, for the last volatility calculation day

$DC_{vcd,t}$  = Number of calendar days from (and excluding) the last volatility calculation day to (and including) business day t

$synthDiv$  is a synthetic dividend (as defined in 10.2), deducted on a daily basis.

The formula for  $Exp_{vcd}$  is given below<sup>3</sup>:

$$Exp_{vcd} = \min\left(maxLeverage, \frac{volTarget}{realizedVol_{vcd-2}}\right)$$

Where  $maxLeverage = 2$  and  $volTarget =$  Index Volatility Target

The  $realizedVol_{vcd}$  is calculated according to the following formula, where  $i$  is a volatility calculation day ( $vcd$ ):

$$realizedVol_{vcd} = \sqrt{\frac{252}{20} * \sum_{i=0}^{19} \left( \ln\left(\frac{targetIndex_{vcd-i}}{targetIndex_{vcd-i-1}}\right) \right)^2}$$

The last volatility calculation day ( $vcd$ ) is defined to be the most recent business day for the target index prior to business day t where all of the following exchanges are open<sup>4</sup>:

- New York Stock Exchange (NYSE) - USA
- London Stock Exchange (LSE) - UK
- Tokyo Stock Exchange - Japan
- XETRA - Germany

### Calculation Schedule

10.6. The Indices are calculated as described in section 7 according to the following schedule:

Index (Both price & net total return indices)	Calculation Period
ROBO Global® Robotics and Automation 18% Volatility Target Index	Once per business-day, 5:00pm Eastern (USA) time

<sup>3</sup> prior to 23 August 2018, the denominator in the  $Exp_{vcd}$  formula was defined to be  $realizedVol_{vcd-1}$ .

<sup>4</sup> prior to 23 August 2018, the last volatility calculation day ( $vcd$ ) was defined to be the most recent business day for which the target index was calculated.

## APPENDICES

### 11. Definitions

An **"Affiliated Exchange"** is with regard to an Index Constituent an exchange, a trading or quotation system on which options and futures contracts on the Index Constituent in question are traded, as specified by the Calculation Agent.

**"Business Day"** means a weekday on which the London Stock Exchange (for ROBO Global® UCITS Indices) or the US NYSE (for ROBO Global® non-UCITS Indices) is open.

**"Calculation Agent"** is Solactive AG or any appointed successor thereto.

**"Determination Date"** is the prevailing "Business Day" on which the respective Scheduled Determination Date occurred.

An **"Eligible Exchange"** is one which satisfies the following criteria as determined by the Index Management Committee and which shall be published on [www.roboglobal.com](http://www.roboglobal.com):

- **Regulated:** The market must be regulated. Such a market is subject to supervision by an authority or authorities, duly appointed or recognised by the state in which it is located. The authority(ies) should generally have the power to impose capital adequacy rules, to supervise directly members of the market, to impose listing standards, to ensure transparency in dealings and to impose penalties where breaches of rules or standards occur. The clearance and settlement system for transactions should also be regulated and should have acceptable settlement periods.
- **Recognised:** The market must be recognised or registered by an authority or authorities, duly appointed or recognised by the state in which it is located.
- **Operating Regularly:** Trading must take place with reasonable frequency and the market should have regular trading hours. In assessing this criteria, reference shall be made to liquidity in the market, including the number of members/participants, and the ability of the market to provide fair prices on an ongoing basis.
- **Open to the public:** The market must be open to the public. The public should have direct or indirect access to the securities traded on the market. The degree to which overseas investors are permitted to invest and any rules which may impede the repatriation of capital or profits shall be taken into account when assessing whether this criteria is satisfied.

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

**"Extraordinary Event"** shall be defined as:

- a Merger;
- a Takeover Bid;
- Trading Halt

- a Delisting;
- the Nationalisation of an Index Constituent, its business as a going concern or its assets; or
- Insolvency.

**“Index Constituent”** means (as of Business Day t) the shares included in the Index as of Business Day t

**“Index Consultative Group”** means the committee convened by ROBO Global® LLC whose roles and responsibilities are outlined in Section 2 of these Guidelines.

**“Index Management Committee”** means the committee at ROBO Global® LLC whose roles and responsibilities are outlined in Section 2 of these Guidelines.

**“Insolvency”** occurs with regard to an Index Constituent 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 Constituents or (B) the holders of the shares of this issuer are legally enjoined from transferring the shares.

**“Market Capitalisation”** is with regard to each of the companies in the ROBO Global® Industry Classification on a Determination Date or Rebalance Date the value of the relevant issued shares calculated by multiplying the Number of Shares outstanding by the share price and converting into the Index Currency.

A **“Market Disruption Event”** occurs if:

- one or more of the following events occurs or exists on a Trading Day prior to the opening quotation time for an Index Constituent:
- 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):
- across the whole Exchange; or
- in options or futures contracts on or with regard to an Index Constituent or an Index Constituent that is quoted on an Affiliated Exchange; or
- on an Exchange or in a trading or quotation system (as determined by the Calculation Agent) in which an Index Constituent is listed or quoted; or
- an event that (in the assessment of the Calculation Agent) 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; or
- trading on the Exchange or an Affiliated Exchange is ceased prior to the usual closing time (as defined below), unless the early cessation of trading is announced by the Exchange or Affiliated Exchange on this Trading Day at least one hour before

- the actual closing time for normal trading on the Exchange or Affiliated Exchange on the Trading Day in question or, if earlier.
- the closing time (if given) of the Exchange or Affiliated Exchange for the execution of orders at the time the quote is given; or
- 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 Calculation Agent, whereby the Calculation Agent makes his decision based on those circumstances that he considers reasonable and appropriate.

A **“Merger”** is:

- a change in the security class or a conversion of a share class that results in a transfer or an ultimate definite obligation to transfer all the shares in circulation to another legal entity;
- 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 under which the issuer of the relevant Index Constituent is the acquiring or remaining entity and which does not involve a change in security class or a conversion of all the shares in circulation);
- 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 which are held and controlled by the legal person); or
- a merger (either by acquisition or through forming a new structure) or a binding obligation on the part of the issuer of the shares or its subsidiaries to exchange shares with another legal entity, whereby the issuer of the share is the acquiring or remaining entity and it 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.

**“Nationalisation”** is a process whereby all shares or the majority of the assets of the issuer of the shares are nationalised or are expropriated or otherwise must be transferred to public bodies, authorities or institutions.

**“Net Distribution Rate”** is the gross distribution rate paid out by a company adjusted for the relevant Withholding Tax Rate. It is calculated as 1 minus the applicable Withholding Tax Rate and/or other applicable tax rate currently prevalent in the respective country multiplied with the gross distribution rate.

**“Normal Exchange Closing Time”** 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.

**“Number of Shares”** is in respect of an Index Constituent and any given Business Day the number or fraction of shares included in the Index. It is calculated for any Index Constituent

as the ratio of (A) the Percentage Weight of an Index Constituent multiplied by the Index value and (B) its Trading Price.

**"Percentage Weight"** of an Index Constituent is the ratio of its Trading Price multiplied by its Number of Shares divided by the Index value.

**"Rebalance Date"** is the prevailing Business Day on which the respective Scheduled Rebalance Date occurred.

**"Scheduled Business Day"** is a day on which commercial banks in the US are scheduled to be open.

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

A **"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 rights in respect of the issuer of the Index Constituent or the right to acquire these voting rights, as determined by the Calculation Agent based on notices submitted to public or self-regulatory authorities or other information considered by the Calculation Agent to be relevant.

A **"Trading Day"** is in relation to the Index or an Index Constituent 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 Calculation Agent is ultimately responsible as to whether a certain day is a Trading Day with regard to the Index or an Index Constituent or in any other connection relating to this document.

The **"Trading Price (or "Traded Price")** in respect of a Trading Day is the closing price on the relevant Trading Day determined in accordance with the Exchange regulations. If the Exchange has no closing price for an Index Constituent, the Calculation Agent shall determine the Trading Price and the time of the quote for the share in question in a reasonable manner.

**"Withholding Tax Rate"** is the applicable withholding tax rate relevant to the Net Total Return Index. The currently prevalent Withholding Tax Rates are published on:  
<http://www.solactive.com/documents-and-downloads/>

## 12. History of changes made to the Index Series Methodology

### Rebalance Date – 30 September 2014

- In Section 2.2 (“Index Construction”), the following two changes were recorded and effective with respect to the calculation period beginning on 01 October 2014.
- the minimum trailing 3-month average daily value traded value was increased from USD 100,000 to USD 500,000; and
- an additional filter was added as follows: “The Index requires a minimum of 65 Index Constituents with at least 15 “bellwether” stocks and 45 “non-bellwether” stocks.”

### Rebalance Date – 19 December 2014

- Within the definitions section the definition for “Scheduled Rebalance Date” was changed from “is the last Scheduled Business Day in March, June, September and December” to the current definition.
- Within Section 2.1 (ROBO Global® Industry Classification), the 14 sub-sectors were updated to 13 sub-sectors and re-arranged under Technology and Applications. The previous list of sub-sectors is listed below for reference:
  - Machine navigation technology
  - Consumer robotics
  - Microcontrollers
  - Actuation technology
  - Technology manufacturing automation
  - Energy and subsea remotely operated vehicles (ROVs)
  - Machine vision and image recognition
  - Agriculture, logistics and material handling automation
  - Industrial automation software and equipment
  - Constituents, software and subsystem manufacturing
  - Military unmanned aircraft systems (UAS), defence and space
  - Healthcare Robotics and automation products
  - 3D printing technology
  - Sensors, motion processing, & voice recognition

### Rebalance Date – 22 June 2015

- Within the sub-sectors definitions, we renamed one sub-sector from “Military unmanned aircraft systems (UAS), defence and space” to “Security, UAS (unmanned aircraft systems) and Space”

### **Company name and other changes – 17 September 2015**

- With effect from 17 September 2015, the company named “*ROBO-STOX Partners Ltd*” was rebranded and renamed “*ROBO Global Partners Ltd*” and the company named “*ROBO-STOX LLC*” was rebranded and renamed “*ROBO Global LLC*”.
- Also with effect from 17 September 2015, the following name changes were made to the index referenced in the Guidelines:
- The “ROBO-STOX® Global Robotics and Automation UCITS Index” was renamed “ROBO Global® Robotics and Automation UCITS Index”.
- The “ROBO-STOX® Global Robotics and Automation UCITS Price Return Index” was renamed “ROBO Global® Robotics and Automation UCITS Price Return Index”.
- In Section 2.1 (ROBO Global® Industry Classification), the sub-sector “*Security, UAS (unmanned aircraft systems) and Space*” was renamed “*Surveillance / Security*”.
- All references to “[www.robostox.com](http://www.robostox.com)” in the Guidelines were changed to “[www.roboglobal.com](http://www.roboglobal.com)”.

### **Rebalance Date – 18 December 2015**

- In Section 2.2 (“Index Construction”), the following two changes were recorded and will be effective with respect to the calculation period beginning on 21<sup>st</sup> December, 2015
- the minimum Market Capitalization was reduced to USD 100,000,000 for Companies that are currently an Index Constituent (for Companies that are not an current Index Constituent, this remained as USD 200,000,000); and
- the minimum trailing 3-month average daily value traded value was reduced to USD 350,000 for Companies that are currently an Index Constituent (for Companies that are not an current Index Constituent, this remained as USD 500,000).

### **General Changes – 1 June 2017**

All ROBO Global® indices are now incorporated into this one Index Series Methodology for easy reference by our partners and other members of the industry. See the Table in Section 1 for the current index series details.

- General formatting and non-material changes were made throughout the document.
- The roles and responsibilities across the Index Management Committee, Supervisory Index Committee (as was), Calculation Agent and ROBO Global® were clarified in greater detail throughout the document.
- Section 1 - The index series’ benchmark administrator is ROBO Global® LLC. All reference to ROBO Global Partners Ltd has been removed.
- Section 2 - We define in greater detail the composition of the ‘Index Management Committee’.
- Section 2 - We now reference and define the role of the ‘Index Consultative Group’.
- Section 3 – We have merged the ‘Computing’ and ‘Processing’ sub-sectors under a new name of ‘Computing, Processing and AI’.

- Section 3 - Our 'Agriculture' sub-sector is now defined as 'Agriculture & Food'.
- Section 3 - We made some general non-material updates to the ROBO Global® Industry Classification process.
- Section 3 - We now state our responsible investing policy.
- Section 3 - We inserted a statement to allow both index constituents and non-index constituents to appeal their index membership status or industry classification status.
- Section 4 - The 3-month composite average daily value traded filter was split into a "New Component Size Requirement" and an "Existing Component Size Requirement", with their values set at \$1,000,000 and \$850,000 respectively.
- Section 4 - We inserted the following wording: "From the determination date until the rebalance date, the number of shares used for each index constituent is fixed and not changed unless a corporate event occurs."
- Section 4 - We inserted a statement to clarify how index constituents are chosen should the index minimum or maximum number be breached.

**Addition of "ROBO Stake" factor to manage exposure to individual companies – 15 September 2017**

- Section 4 – Addition of a new weighting factor to limit the percentage weight ROBO Global®-linked products can hold in an individual constituent company.

**New Indices – 15 December 2017**

- ROBO Global® launched new indices and introduced a new "modified market capitalisation" weighting system for those new indices:
- Section 1 - Lists the new index series.

Section 4 – Defines the selection process for index constituents and the weighting methodology for the indices.

- Section 3 – Information on the ROBO Global® Industry Classification was reduced to reflect the availability of a new, comprehensive document created for that purpose.
- Section 4.8 - Clarified the period between the announcement of a change to eligible markets and implementation of that change.

**Document Re-organisation, Rebalance Schedule, Suspension Requirement, China A Inclusion Factor, and general clarifications – 23 August 2018**

- Document was reorganised in order to include multiple index series in a single framework
- In addition to the ROBO Global® Robotics, Automation and AI Index Series, the following index series were added:
  - ROBO Global® Artificial Intelligence Index Series
  - ROBO Global® Volatility Target Index Series

- The determination date for the ROBO Global® Robotics, Automation and AI Index Series was moved to 14 calendar days prior to the rebalance date with indicative changes to be released to licensees 7 calendar days prior to the rebalance date
- ROBO Global® Robotics, Automation and AI Index Series - Added a “China A Inclusion Factor” applied to the weightings of constituents on C1 Equity or C2 Equity exchanges.
- Clarified language around using “Country of Domicile” for constituent country classifications.
- Clarified language around the calculation of the ROBO Holding Cap Factor.

**Index Identifier Updates – 21 December 2018**

- Updated revised index codes and ISINs for the ROBO Global® Artificial Intelligence Index Series
- Included index codes and ISINs for the ROBO Global® Robotics, Automation and AI Currency Index Series
- Clarified language around the calculation frequency of indices on non-business days

### 13. Further information

For further information regarding the Index composition and calculation, please contact:

**ROBO Global® LLC**

[indexcommittee@roboglobal.com](mailto:indexcommittee@roboglobal.com)

or

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60325 Frankfurt am Main

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### 14. Legal

The names "ROBO Global®" and "Solactive" are trademarked.

This document contains the rules regarding the structure and calculation of the ROBO Global® indices. Solactive AG is currently the Calculation Agent.

Solactive AG shall make every effort to implement such rules. 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 point in time nor in any other respect. The Index is calculated and published by Solactive AG without warranty, and Solactive AG shall strive to the best of its ability to ensure the correctness of the calculation. There is no obligation for Solactive AG to notify third parties directly, including investors and/or financial intermediaries, of any errors in the Index. In case of any errors in the Index, the Solactive AG will announce such errors on its website. The publication of the Index by Solactive AG is not a recommendation for capital investment and does not indicate any assurance or opinion of Solactive AG regarding a possible investment in a financial instrument based on the Index.