



## Overview

Robotics & Automation 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 Index was first to market in August 2013 and the objective is to provide investors with a comprehensive, transparent and diversified benchmark representing the global value chain of robotics, automation and enabling technologies. The index methodology follows a modified equal weighting scheme and rebalances on a quarterly basis to respond to changes in the technological and competitive landscapes and maintain diversification. Including the leading players in a proportionate and modified equal weighted fashion ensures that the index capture the growth trend while minimizing company-specific risk. The index is designed and maintained by ROBO Global® LLC and their team of industry experts.

## Performance Chart<sup>1</sup>

ROBO Global® Index Performance - Rebased 100 = January 2009



<sup>1</sup>The index liquidity filter was modified in June 2017 as per the published index guidelines at [www.roboglobal.com](http://www.roboglobal.com), the data shown is derived from the published index values. Prior to 2 August 2013, the data is based on simulated back-tested data.

## Index Facts

|  |   |
|--|---|
| Go Live Date                               | 2 <sup>nd</sup> August 2013                                   |
| Index Components                           | 84  |
| Bellwether companies (BW)                  | 23  |
| Non Bellwether companies (NBW)             | 61  |
| Eligible Universe                          | All companies within the ROBO Global® Industry Classification |
| Weighting                                  | Equal weighting within BW (40%) and NBW (60%)                 |
| Rebalance / Additions / Deletion Frequency | quarterly   |

|                            |  |
|----------------------------|--|
| Calculation Frequency      | every 15 seconds 2.00am to 4.30pm ET   |
| Dividend treatment         | Price return and total return versions are available. The total return version of the index is calculated with net dividends reinvested. |
| History availability       | available daily back to December 31 <sup>st</sup> 2002   |
| Base Value / Base Date     | 100 / December 31 <sup>st</sup> 2002   |
| Bloomberg / Reuters Ticker | ROBOTR Index / .ROBOTR   |

## Key Statistics

|                    | 6M     | 1Y     | Since 2002 <sup>2</sup> |
|--------------------|--------|--------|-------------------------|
| Performance (eff.) | 22.71% | 51.37% | 1,528.75%               |
| Performance (p.a.) |        |        | 20.61%                  |
| Volatility         | 8.86%  | 8.68%  | 17.04%                  |
| Sharpe Ratio       |        | 5.72   | 1.06                    |

<sup>2</sup>Including back-tested data prior to 2 August 2013.

## Fundamentals<sup>3</sup>

|             |       |
|-------------|-------|
| P/E         | 30.01 |
| P/B         | 4.14  |
| EV/Sales    | 2.99  |
| P/Cash Flow | 21.48 |

<sup>3</sup>The fundamentals are updated on a monthly basis. Data as of October 31, 2017. The calculation is based on the median.



## Index Methodology and Industry Classification

**Coverage Team** - The index is supported by a unique coverage team comprised of research and academic leaders from within the Robotics and Automation Industry who work closely with our management team.

**Database** - We maintain an active database of over 1,000 companies globally engaged in the Robotics and Automation Industry.

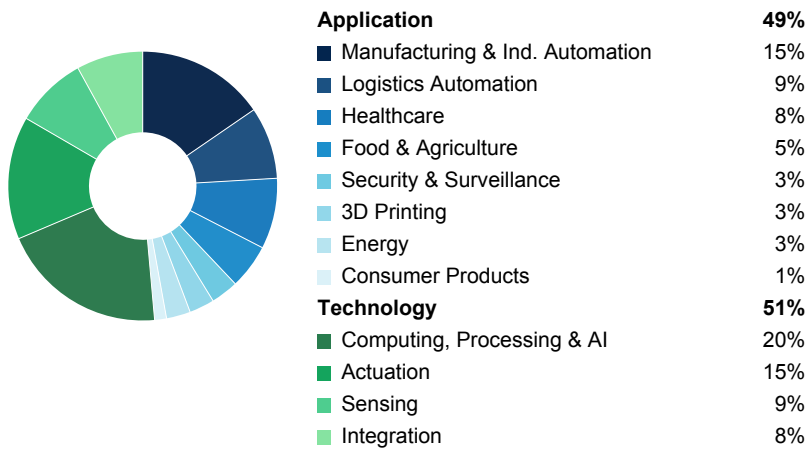
**ROBO Global® Industry Classification** - In the absence of a benchmark industry classification system for Robotics and Automation we created the ROBO Global® Industry Classification. Companies included are publicly traded on approved exchanges, and derive a substantial portion of revenues from Robotics and Automation related activities. Companies are defined as either a 'Technology' company with 5 sub sectors or an 'Application' provider with 8 sub sectors.

**Index Filters** - Index constituents are initially selected from the ROBO Global® Industry Classification in accordance with predetermined rules and objective criteria including minimum market capitalisation and average daily value traded.

**Modified Equal Weighting** - The Index is comprised of "bellwether" (BW) and "non-bellwether" (NBW) companies. BWs are well established leading players, whose core business is directly related to Robotics and Automation. NBWs have a distinct portion of their business and revenue in Robotics and Automation and have the potential to grow through innovation and market adoption of their products and services. BWs are allocated 40% of the index and NBW 60%. Within BW and NBW each constituent is equally weighted. The 40/60 weighting results in each BW having roughly twice the weight of each NBW.

**Quarterly rebalance** - The index rebalances on a quarterly basis to respond to new entrants and maintain diversification.

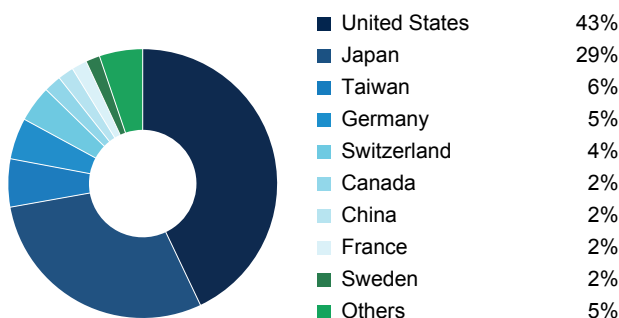
## ROBO Global® Industry Classification<sup>4</sup>



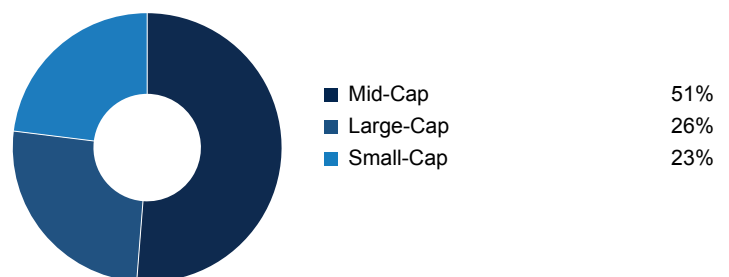
**Applications** - highlights all index companies that incorporate multiple robotic and automation technologies into their product or manufacturing process to improve efficiency in traditional business lines as well as the development of entirely new business propositions.

**Technology** - captures all index companies that manufacture or provide services related to any machinery, equipment, devices or sensors supporting a robot performing its task. It also includes those companies that provide key-enabling software and processing technologies used to advance the conversion to autonomous systems. Essentially, we are looking at the companies that enable robots to sense, process and act.

## Geographic Breakdown<sup>4</sup>



## Market Capitalization Breakdown<sup>4</sup>



<sup>4</sup>Charts are presented based on each companies daily weightings in the index.

## TOP 10 Holdings<sup>5</sup>

|                            |       |
|----------------------------|-------|
| YASKAWA ELECTRIC CORP ORD  | 2.27% |
| HARMONIC DRIVE SYSTEMS INC | 2.11% |
| COGNEX CORP                | 2.08% |
| IPG PHOTONICS CORP         | 2.08% |
| OMRON CORP ORD             | 2.01% |

|                     |       |
|---------------------|-------|
| FANUC CORP          | 2.00% |
| HIWIN TECHNOLOGIES  | 1.97% |
| HOLLYSYS AUTOMATION | 1.91% |
| ACCURAY INC         | 1.88% |
| DAIFUKU CO LTD      | 1.87% |

<sup>5</sup>The TOP 10 Holdings are updated on a daily basis.

## Monthly Performance

|             | Jan     | Feb   | Mar   | Apr    | May   | Jun    | Jul    | Aug    | Sep    | Oct    | Nov   | Dec    | YTD    |
|-------------|---------|-------|-------|--------|-------|--------|--------|--------|--------|--------|-------|--------|--------|
| <b>2017</b> | 6.46%   | 3.32% | 2.13% | 3.05%  | 4.65% | -0.89% | 5.70%  | 1.85%  | 5.03%  | 5.17%  | 4.34% |        | 48.97% |
| <b>2016</b> | -10.37% | 3.80% | 9.55% | 1.58%  | 1.06% | -1.60% | 6.19%  | 1.45%  | 5.00%  | -2.41% | 2.32% | 2.02%  | 18.64% |
| <b>2015</b> | -2.70%  | 5.21% | 0.86% | 0.81%  | 0.27% | -1.73% | -5.01% | -5.76% | -5.63% | 9.37%  | 2.58% | -1.20% | -3.97% |
| <b>2014</b> | -2.26%  | 3.83% | 0.02% | -4.15% | 1.30% | 6.00%  | -1.87% | 0.46%  | -3.94% | -0.77% | 1.35% | -1.46% | -1.97% |
| <b>2013</b> |         |       |       |        |       |        |        | -2.20% | 11.92% | 2.74%  | 3.72% | 4.60%  | 22.00% |

## General Disclaimer

Copyright © 2017 by ROBO Global, LLC. All rights reserved. ROBO Global® is a registered trademark of ROBO Global, LLC.

ROBO Global, LLC is referred to as "ROBO."

Redistribution, reproduction and/or photocopying in whole or in part are prohibited without written permission. This document does not constitute an offer of services in jurisdictions where ROBO does not have the necessary licenses. All information provided by ROBO is impersonal and not tailored to the needs of any person, entity or group of persons.

The ROBO Global® Robotics and Automation Index and the ROBO Global® Robotics and Automation UCITS Index (the "Indices") are the property of ROBO who have contracted with Solactive AG to calculate and maintain the Indices. The Indices are not sponsored by Solactive AG or its affiliates. Neither Solactive AG, nor any of their affiliates will be liable for any errors or omissions in calculating the Indices. Closing prices for the Indices are calculated by Solactive AG based on the closing price of the individual constituents of the index as set by their primary exchange. Historical performance illustrations in the Indices are based on a backcast calculation. A backcast calculation can be materially different from a backtest analysis.

Past performance of an index is not a guarantee of future results. The value of investments may go down as well as up and potential investors may not get back the amount originally invested. It is not possible to invest directly in an index. Exposure to an asset class represented by an index is available through investable instruments based on that index. ROBO makes no assurance that investment products based on the index will accurately track index performance or provide positive investment returns. A decision to invest in any such investment fund or other investment vehicle should not be made in reliance on any of the statements set forth in this document. ROBO is not in a position to give advice on the suitability of any investments for potential investors. Prospective investors are advised to make an investment in any such fund or other vehicle only after carefully considering the risks associated with investing in such funds, as detailed in an offering memorandum or similar document that is prepared by or on behalf of the issuer of the investment fund or other vehicle. Inclusion of a security within an index is not a recommendation by ROBO to buy, sell, or hold such security, nor is it considered to be investment advice.

It is not intended that anything stated in this factsheet should be construed as an offer or invitation to buy or sell any investment in any Investment Fund or other investment vehicle referred to in this website, or for potential investors to engage in any investment activity.

No Investment Fund or other investment vehicle based on the Indices is sponsored, promoted, sold or supported in any other manner by ROBO or Solactive AG (the "Index Parties") nor do the Index Parties offer any express or implicit guarantee or assurance either with regard to the results of using the Indices and/or an Index trademark or an Index price at any time or in any other respect. The Index Parties use their best efforts to ensure that the Indices are calculated correctly. Irrespective of their obligations towards the Company, the Index Parties have no obligation to point out errors in the Indices to third parties including but not limited to investors in, and/or financial intermediaries of, any Investment Funds or other investment vehicles. Neither publication of the Indices by Solactive AG nor the licensing of the Indices or an Index trademark by ROBO for the purpose of use in connection with any Investment Fund or other investment vehicle based on the Indices constitutes a recommendation by the Index Parties to invest capital in any such fund or investment vehicle nor does it in any way represent an assurance or opinion of the Index Parties with regard to any investment in such fund or investment vehicle.

These materials have been prepared solely for informational purposes based upon information generally available to the public from sources believed to be reliable. No content contained in these materials (including index data, ratings, credit-related analyses and data, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse-engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of ROBO. The Content shall not be used for any unlawful or unauthorized purposes. ROBO and its third-party data providers and licensors (collectively "ROBO Parties") do not guarantee the accuracy, completeness, timeliness or availability of the Content. ROBO Parties are not responsible for any errors or omissions, regardless of the cause, for the results obtained from the use of the Content. The content is provided on an "as is" basis.

ROBO Parties disclaim any and all express or implied warranties, including, but not limited to, any warranties of merchantability or fitness for a particular purpose or use, freedom from bugs, software errors or defects, that the content's functioning will be uninterrupted or that the content will operate with any software or hardware configuration. In no event shall ROBO Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the Content even if advised of the possibility of such damages. ROBO Parties and their respective employees, affiliates and partners hereby exclude, to the extent permitted by applicable law, all liability in connection with the use of this factsheet.