



## 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 June 2014 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	83
Bellwether companies (BW)	23
Non Bellwether companies (NBW)	60
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.)	19.21%	37.72%	1,287.57%
Performance (p.a.)			19.77%
Volatility	8.90%	9.36%	17.17%
Sharpe Ratio		3.91	1.01

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

## Fundamentals<sup>3</sup>

P/E	27.70
P/B	3.19
EV/Sales	2.58
P/Cash Flow	18.42

<sup>3</sup>The fundamentals are updated on a monthly basis. Data as of June 30, 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.

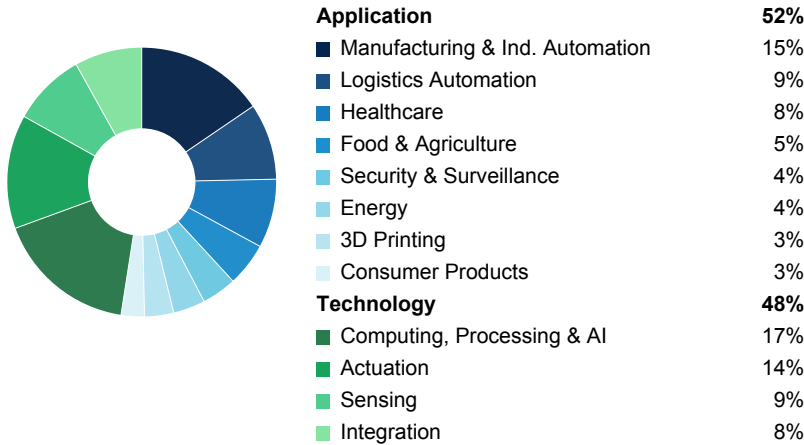
**ROBO Global® Industry Classification** - In the absence of a benchmark industry classification system for Robotics and Automation we created the ROBO Global® Industry Classification. Companies included are publicly traded on approved exchanges, and derive a substantial portion of revenues from Robotics 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.

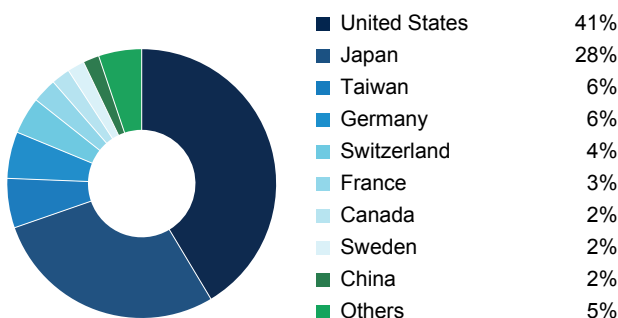
## ROBO Global® Industry Classification<sup>4</sup>



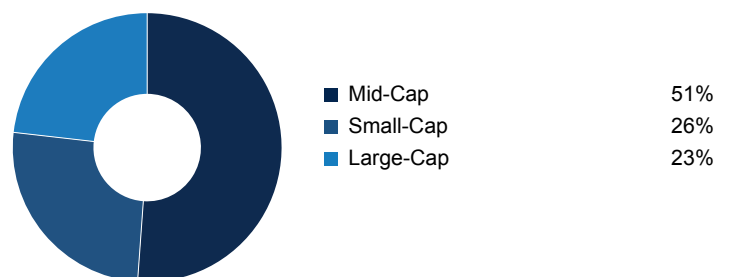
**Applications** - highlights all index companies that incorporate multiple robotic and automation technologies into their product or manufacturing process to improve efficiency in traditional business lines as well as the development of entirely new business propositions.

**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>

AEROVIRONMENT INC	2.04%
HARMONIC DRIVE SYSTEMS INC	2.04%
YASKAWA ELECTRIC CORP ORD	1.98%
OMRON CORP ORD	1.96%
HOLLYSYS AUTOMATION	1.93%

DAIFUKU CO LTD	1.88%
NABTESCO CORP ORD	1.85%
IROBOT CORP	1.84%
HIWIN TECHNOLOGIES	1.78%
FARO TECHNOLOGIES INC	1.75%

<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%						26.91%
<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>						-1.94%	-5.01%	-5.76%	-5.63%	9.37%	2.58%	-1.20%	-8.19%

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