IRB 910SC
SCARA Overview
IRB 910 SC

Agenda

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2. Overview and vision
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Overview

Differentiated value proposition

"fast, cost-effective and, because it's from ABB, accurate"
Overview and vision

• Original vision

• To fill the gap in our small robot portfolio with a competitive 4 axis robot which could be used in high speed accurate small part assembly, machine tending and general pick and place solutions which would require a compact fast accurate robot
Overview and vision

Primary target markets

3C
- Assembly and test of custom chips, Automated board testing, Aerospace electronic components assembly
- Inspections of PC boards, Automated cleaning of circuit board components

Food packaging
- Meat Packaging, snack packaging, Box cutting and taping, Plastic component packaging
- Meat/ snack handling operations, Vegetable picking & cutting, Produce packaging

Medical/ Pharmaceutical
- Ideal for lab automation & drug manufacturing operations
- Custom prescription filling, Tablet packaging
Overview and vision

Target main applications

- Small Parts Assembly
  - Screw driving
  - Inserting
  - Assembly/ disassembly
  - Mounting

- Material Handling
  - Picking and placing
  - Parts transfer
  - Parts handling
  - Sorting

- Inspection
  - Product inspection
  - Testing
  - Quality control
Overview and vision
IRB 910SC vs. IRB 120

**IRB 910SC**
IRB 910SC offers unmatched four axis performance while still having the power of ABB’s rapid and IRC-5 platform

It has been designed to be lightweight and portable, boasts a small footprint with superior speed and accuracy

**IRB 120**
IRB 120 offers all the functionality and expertise of the ABB range in a much smaller packaging

Its reduced weight of only 25kg and compact design enables it to be mounted virtually anywhere on the production line, with superior control and path accuracy
Overview and vision

SCARA portfolio

Payload (kg)

Reach (mm)

- 3 kg
  - To Be Developed
- 6 kg
  - To Be Developed
- 8 kg
  - To Be Developed
## Main features

<table>
<thead>
<tr>
<th></th>
<th>IRB 910SC - 3/ 0.45</th>
<th>IRB 910SC - 3/ 0.55</th>
<th>IRB 910SC - 3/ 0.65</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Payload</strong></td>
<td>Maximum 6kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reach</strong></td>
<td>450 mm</td>
<td>550 mm</td>
<td>650 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>24.5 kg</td>
<td>25 kg</td>
<td>25.5 kg</td>
</tr>
<tr>
<td><strong>Footprint</strong></td>
<td></td>
<td>160mmx160mm</td>
<td></td>
</tr>
<tr>
<td><strong>Shaft Diameter</strong></td>
<td></td>
<td>20 mm</td>
<td></td>
</tr>
<tr>
<td><strong>Degree of Protection</strong></td>
<td></td>
<td>IP20</td>
<td></td>
</tr>
<tr>
<td><strong>Mounting Position</strong></td>
<td></td>
<td>Table top</td>
<td></td>
</tr>
<tr>
<td><strong>Controller</strong></td>
<td></td>
<td>IRC 5 Compact</td>
<td></td>
</tr>
<tr>
<td><strong>Supply Voltage</strong></td>
<td></td>
<td>200-600 V, 50/60Hz</td>
<td></td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td></td>
<td>200 W</td>
<td></td>
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</table>
Payload range
IRB 910SC – 3/ 0.45
Payload range
IRB 910SC – 3/ 0.55
Payload range
IRB 910SC – 3/ 0.65
Work range
IRB 910SC – 3/ 0.45
Work range
IRB 910SC – 3/ 0.55
Work range
IRB 910SC – 3/ 0.65
## Work range

Axis movement/ Maximum speed

### Movement

<table>
<thead>
<tr>
<th>Axis movement</th>
<th>IRB 910SC-3/0.45</th>
<th>Maximum speed</th>
<th>IRB 910SC-3/0.55</th>
<th>Maximum speed</th>
<th>IRB 910SC-3/0.65</th>
<th>Maximum speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axis 1 Rotation</td>
<td>±140 deg</td>
<td>415 deg/s</td>
<td>±140 deg</td>
<td>415 deg/s</td>
<td>±140 deg</td>
<td>415 deg/s</td>
</tr>
<tr>
<td>Axis 2 Rotation</td>
<td>±150 deg</td>
<td>659 deg/s</td>
<td>±150 deg</td>
<td>659 deg/s</td>
<td>±150 deg</td>
<td>659 deg/s</td>
</tr>
<tr>
<td>Axis 3 Up/ Down</td>
<td>180mm</td>
<td>1.02m/s</td>
<td>180mm</td>
<td>1.02m/s</td>
<td>180mm</td>
<td>1.02m/s</td>
</tr>
<tr>
<td>Axis 4 Rotation</td>
<td>±400 deg</td>
<td>2400 deg/s</td>
<td>±400 deg</td>
<td>2400 deg/s</td>
<td>±400 deg</td>
<td>2400 deg/s</td>
</tr>
</tbody>
</table>

Disclaimer: The numbers contained herein are provisional and subject to change.
# Performance and accuracy

<table>
<thead>
<tr>
<th>Movement</th>
<th>IRB 910SC - 3/ 0.45</th>
<th>IRB 910SC - 3/ 0.55</th>
<th>IRB 910SC - 3/ 0.65</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Working range</td>
<td>Maximum speed</td>
<td>Working range</td>
</tr>
<tr>
<td>Axis 1 Rotation</td>
<td>±140 deg</td>
<td>415 deg/s</td>
<td>±140 deg</td>
</tr>
<tr>
<td>Axis 2 Rotation</td>
<td>±150 deg</td>
<td>659 deg/s</td>
<td>±150 deg</td>
</tr>
<tr>
<td>Axis 3 Up/ Down</td>
<td>180mm</td>
<td>1.02m/s</td>
<td>180mm</td>
</tr>
<tr>
<td>Axis 4 Rotation</td>
<td>±400 deg</td>
<td>2400 deg/s</td>
<td>±400 deg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance</th>
<th>IRB 910SC - 3/ 0.45</th>
<th>IRB 910SC - 3/ 0.55</th>
<th>IRB 910SC - 3/ 0.65</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kg Picking Cycle</td>
<td>0.370 s</td>
<td>0.380 s</td>
<td>0.385 s</td>
</tr>
<tr>
<td>Max TCP Velocity</td>
<td>6.2 m/s</td>
<td>6.9 m/s</td>
<td>7.6 m/s</td>
</tr>
<tr>
<td>Max TCP Acceleration</td>
<td>65 m/s^2</td>
<td>60 m/s^2</td>
<td>55 m/s^2</td>
</tr>
<tr>
<td>Acceleration Time 0-1m/s</td>
<td>0.04 s</td>
<td>0.05 s</td>
<td>0.06 s</td>
</tr>
<tr>
<td>Axis 3 (Z stroke) Down Force</td>
<td>250 N</td>
<td>250 N</td>
<td>250 N</td>
</tr>
<tr>
<td>Maximum Speed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Axis 1 + Axis 2</td>
<td>6.13 m/s</td>
<td>6.86 m/s</td>
<td>7.58 m/s</td>
</tr>
<tr>
<td>Axis 3</td>
<td>1.02 m/s</td>
<td>1.02 m/s</td>
<td>1.02 m/s</td>
</tr>
<tr>
<td>Axis 4</td>
<td>2400 deg/s</td>
<td>2400 deg/s</td>
<td>2400 deg/s</td>
</tr>
<tr>
<td>Position Repeatability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Axis 1 + Axis 2</td>
<td>±0.015 mm</td>
<td>±0.015 mm</td>
<td>±0.015 mm</td>
</tr>
<tr>
<td>Axis 3</td>
<td>±0.01 mm</td>
<td>±0.01 mm</td>
<td>±0.01 mm</td>
</tr>
<tr>
<td>Axis 4</td>
<td>±0.005 deg</td>
<td>±0.005 deg</td>
<td>±0.005 deg</td>
</tr>
</tbody>
</table>

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Main dimensions
IRB 910SC – 3/ 0.45
Main dimensions
IRB 910SC – 3/ 0.55
Main dimensions
IRB 910SC – 3/ 0.65

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Outline manipulator
IRB 910SC three variances comparison

Front view
Side view
Top view
Outline manipulator
IRB 910SC – 3/ 0.55 Vs. IRB 120
Easy integration
Customer interfaces

<table>
<thead>
<tr>
<th>Position</th>
<th>Connection</th>
<th>Description</th>
<th>Number</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>(R1)R3.CP/CS</td>
<td>Customer power/signal</td>
<td>10</td>
<td>49V, 500mA</td>
</tr>
<tr>
<td>B</td>
<td>Air</td>
<td>Max. 5 bar</td>
<td>4</td>
<td>Inner hose diameter 4mm</td>
</tr>
</tbody>
</table>
Easy integration
Mounting interfaces
Easy integration
Camera mounting interfaces
Controller
IRC5 Compact

- The IRC5 Compact controller is a desktop sized robot controller designed for segments such as 3C market. The compact controller protection degree is class IP20
- Low cost
- Portable (28.5 kg)
- External connectors
- Built-in 16 in /16 out
Customer benefits

Fast and accurate

Shorter cycle time with pin point accuracy gives you a better ROI
Customer benefits
Large working envelope

Enables the best possible use of a compact design which then enables you to handle more tasks in a defined area.
Customer benefits
Compact floor Mounting

Smaller cell design better cell layout giving a smaller footprint allowing better use of floor space

Small footprint 160 mm x 160 mm
Lightweight 24.5 kg
Portable
Customer benefits

Three Variants

Common spares and platform across all models. This makes it possible to have less spares for the range
Customer benefits

Internal Air and signals

There is no need to route cables and air outside the robot, ABB has tested the solution so you don’t need to worry about lifetime of the solution.
Applications
High Speed packing material handling
Applications

Inspection
Applications
3C Electronics assembly

Small parts assembly
Summary

• The SCARA is a product designed to be simple to integrate. Cost effective whilst providing a good return on investment. Fast and accurate and very simple structure which makes it easier for first time robotics users