

# WELDING

## Robot System

Consumer Goods

Semiconductor Industry

Automobile Industry

Energy Industry



**HIWIN**<sup>®</sup>

# Welding Robot System

## Precision and Reliability in *Every Weld*

### Provides Stable Welding Quality and Accuracy

- The system uses HIWIN self-made key components, and the absolute accuracy of Robot reaches **0.05mm**, ensuring stability and reliability.
- Reduces inconsistencies found in manual welding, resulting in smoother weld beads, improved quality, and a higher yield rate.
- Can be integrated with a **laser seam-tracking sensor system** featuring precise trajectory correction technology to achieve excellent welding performance.

### HRSS 4.0 Brand-New Software Experience

- Offers a user friendly graphical interface to make operation simple and intuitive.
- Includes a dedicated welding interface that allows faster and more intuitive parameter setup, reducing machine adjustment time. more intuitive and faster, saving machine adjustment time.

### Imrpove Welding Efficiency

- Built on a self developed EtherCAT control platform that provides real time bidirectional communication.
- Enables synchronous control of up to six axes, allowing the robot and external axes to reach positions simultaneously, eliminating wait time.
- Significantly improves production efficiency and can more than double production capacity.

### Reduce Labor & Cost

- Upgraded production line, simplify the operation process.
- Through the task scheduling function, operators can perform high valued-added operations while robot welding.
- Effectively save human-power, time and costs.

## Why Choose HIWIN's Welding Robot?

**Precision for Welding:** Engineered with HIWIN's crossed roller bearings and high-performance motors for consistent and accurate welding.

**Effortless Programming:** Intuitive software makes setup and operations simple, with free lifetime upgrades included.

**Built to Work Hard:** Designed for durability and dependable performance, even through repetitive tasks.

**Seamless Integration:** Connect easily with trusted welding equipment from renowned brands like Lincoln Electric, Miller Electric, or Abicor-Binzel to create a system tailored to your operation.

Discover a welding robot made to increase efficiency, boost productivity, and deliver reliability day after day.

## Take the Next Step

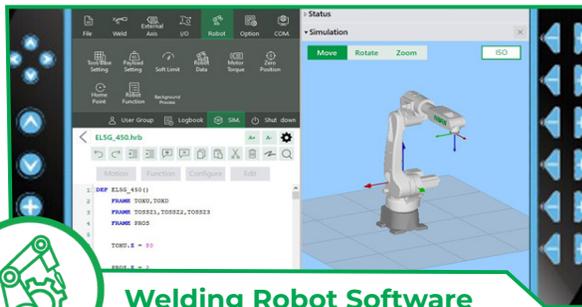
Experience the difference a HIWIN welding robot can make. Contact us today to learn more or schedule a demo!

# Welding Robot System Features



## Touch Sensors

- Auto-search the position of the weld bead
- Workpiece displacement, assembly, matching error compensation
- Standard built-in functions
- Multiple search planning



## Welding Robot Software

- Smart-weld designed interface
- All settings can be completed via the robot teach pendant



## Real-Time Welding Monitor

- Quickly analyze the cause of poor welding
- Real-time data with visual graphs
- Abnormal error and stop function
- complete record of welding parameter data



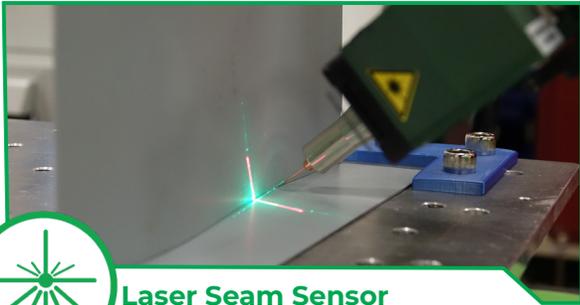
## Weaving

- Parametric weaving settings
- Provide various weaving modes such as SINE, CIRC, L, etc.



## TCP Auto Recovery

- Automatically correct weld bead deviation caused by welding torch tip deviation
- Even if the welding torch collides or stops abnormally, production can be quickly resumed



### Laser Seam Sensor

- Quickly locate the workpieces position
- Excellent position accuracy
- Real-time tracking the weld bead position during welding process
- Flexible use



### Torch Clean Station

- One-stop solution for welding spatter removal, welding wire cutting, and anti-spatter liquid spraying
- Lightweight, highly reliable structural design



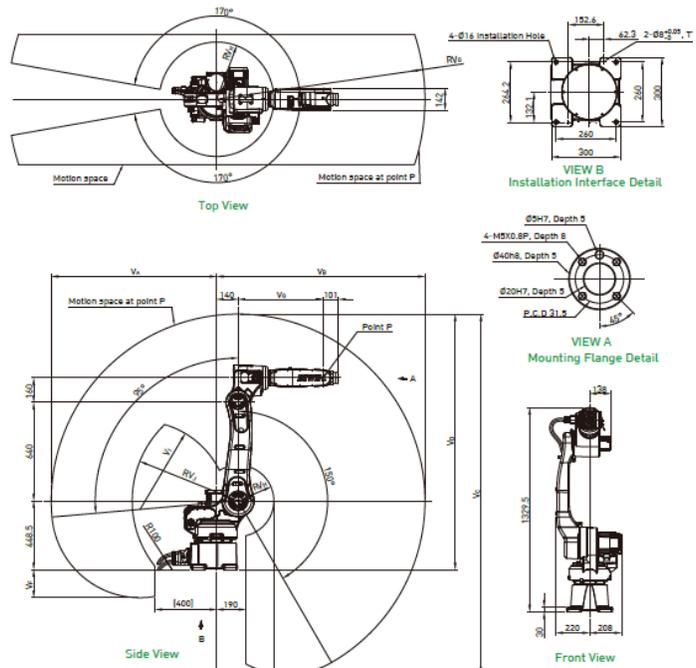
### Analog Welding Module Solution

- Can be integrated with different welding power sources equipped with analog interface
- Support up to 200 sets of welding parameter settings
- Support continuous change of welding parameters during welding process



# Robot Specification

|                             |    |                                |      |       |      |
|-----------------------------|----|--------------------------------|------|-------|------|
| Model Name                  |    | RA610-GC                       |      |       |      |
| Degrees of Freedom          |    | 6                              |      |       |      |
| Nominal Load Capacity (kg)  |    | 12                             | 10   | 10    | 7    |
| Maximum Load Capacity (kg)  |    | 14                             | 12   | 12    | 9    |
| Maximum Reach Radius (mm)   |    | 1355                           | 1476 | 1672  | 1869 |
| Motion Range (deg.)         | J1 | ±170                           |      |       |      |
|                             | J2 | +95--150                       |      |       |      |
|                             | J3 | +185--85                       |      |       |      |
|                             | J4 | ±190                           |      |       |      |
|                             | J5 | ±135                           |      |       |      |
|                             | J6 | ±360                           |      |       |      |
| Position Repeatability (mm) |    | ±0.05                          |      | ±0.06 |      |
| Cycle Time (sec)*Note 1     |    | 1                              |      |       |      |
| Manipulator Weight (kg)     |    | 143                            | 147  | 150   | 152  |
| Protection Rating           |    | IP54(Wrist:IP65)               |      |       |      |
| Robot Controller            |    | RCA610-GC                      |      |       |      |
| Integrated Air Supply       |    | Two channels of air connection |      |       |      |
| Safety Certification        |    | CE/RoHS2.0                     |      |       |      |



\* Note 1: Based on a back-and-forth movement over a vertical distance of 25mm and a horizontal distance of 300mm.

| Model / Dimensions | V <sub>A</sub> | V <sub>B</sub> | V <sub>C</sub> | V <sub>D</sub> | V <sub>E</sub> | V <sub>F</sub> | V <sub>G</sub> | V <sub>H</sub> | V <sub>I</sub> | V <sub>J</sub> |
|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| RA610-1355-GC      | 1075           | 1355           | 2343           | 1663           | 372.5          | 182            | 552            | R232.5         | R575           | R688           |
| RA610-1476-GC      | 1196           | 1476           | 2587           | 1785           | 368            | 304            | 678            | R228           | R697           | R784           |
| RA610-1672-GC      | 1392           | 1672           | 2979           | 1981           | 463            | 500            | 878            | R323           | R892           | R951           |
| RA610-1869-GC      | 1589           | 1869           | 3374           | 2178           | 630            | 697            | 1078           | R490           | R1089          | R1129          |

# Head Stock Specification

|                          |   |
|--------------------------|---|
| Model Name               | HS-350  |
| View                     |  |
| Max Payload              | 350 kg  |
| Max. Speed of Rotation   | 115 °/s   |
| Rated Torque of Rotation | 229 N-m   |
| Repeatability            | ± 0.08mm (R=300mm)  |
| Weight                   | 105 kg  |

# Head Head Stock Specification

|                              |   |
|------------------------------|---|
| Model Name                   | HH-350  |
| View                         |  |
| Max Payload                  | 350 kg  |
| Max. Speed of Rotation       | 115 °/s   |
| Max. Speed of Tilted Angle   | 115 °/s   |
| Rated Torque of Rotation     | 229 N-m   |
| Rated Torque of Tilted Angle | 167 N-m   |
| Repeatability                | ± 0.1mm (R=300mm)   |
| Weight                       | 446 kg  |
| Working Area                 | ARM= ±185°<br>PLATE= Infinite   |

# Robot Transfer Unit Specification

|                       |   |
|-----------------------|---|
| Model Name            | RTU-03  |
| View                  |  |
| Max. Load             | 300 kg  |
| Max. Speed            | 1 m/s   |
| Max. Acceleration     | 2 m/s   |
| Total Length          | Up to 24m, 2m or 3m increments  |
| Effective Stroke      | 1.9 m (Min) / 22.9 m (Max.)   |
| Repeatability         | ± 0.1mm   |
| Weight                | 180 kg/m  |
| Operating Environment | 0-40° C, 20-80%, RH, All surface resistant to weld spatter                          |

# Generate and Guide Motion *With HIWIN*

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