

Modular Grippers

Product specification

ROS 2 enabled modular grippers for robots

The Modular Grippers are highly adaptable ROS 2 running industrial grippers, easy to operate by using a simple Ethernet connection. Enhanced through the H-ROS robot bus, they achieve time synchronization and deterministic communications enabled with TSN standards.



Available manufacturers:



Electrical characteristics

| | |
|---------------------------|--|
| Power input | 48 Vdc, 50-60Hz |
| Nominal power consumption | <200W |
| Communications interface | IEEE 802.3 Gigabit Ethernet |
| Electrical connector | H-ROS connector A (docs) |
| Topology | Daisy-chained modules, fully distributed |

Software characteristics

| | |
|--------------------------|---|
| Operating System | System Embedded real-time Linux |
| Robotics framework | ROS 2 Dashing Diademata |
| Communication middleware | Data Distribution Service (DDS) |
| Information model | Hardware Robot Information Model (HRIM), version 0.3.0, Coliza (docs) |
| Communication interface | 1 Gbps Ethernet Compliant with TSN standards: 802.1 ASrev/AS, IEEE 1588, 802.1Qbv, 802.1Qci, 802.1CB, 802.1-Qcc. |
| Security (module-level) | <ul style="list-style-type: none"> - Dedicated crypto chip (tamper resistance, cryptographic key storage, SHA-256 Hash Algorithm with HMAC, ECDSA sign-verify authentication). - Secure communications (SROS2, IPSec, TLS). - File System encryption IEEE-1735-2014 Version 2 - Secure unique ID storage in cryptochip. - Audited security through continuous penetration tests. |
| Simulation | Gazebo |
| Automatic updates | Over-the-Air (OTA) |

Robotiq modular grippers



S50



S85



S140

| | S50 | S85 | S140 |
|--------------------------------------|----------|---------------------------|---------------------------|
| Original gripper | Hand-E | 2F-85 | 2F-140 |
| Stroke (adjustable) [mm] | 50 | 85 | 140 |
| Grip force (adjustable) [N] | 60-130 | 20-235 | 10-125 |
| Form-fit grip payload [kg] | 5 | 5 | 2.5 |
| Friction grip payload [kg] | 3 | 5 | 2.5 |
| Closing speed (adjustable) [mm/s] | 20-150 | 20-150 | 30-250 |
| Weight [kg] | 1.5 | 1.4 | 1.5 |
| Position resolution (fingertip) [mm] | 0.2 | 0.4 | 0.6 |
| Kinematics | Parallel | Parallel/ Encompassing | Parallel/ Encompassing |

DH-Robotics modular grippers



S95



S130

| | S95 | S130 |
|--------------------------------------|---------------------------|-----------------------------------|
| Original gripper | AG-95 | DH-3 |
| Stroke (adjustable) [mm] | 95 | 108 (parallel) 122 (centric) |
| Grip force (adjustable) [N] | 15-95 | 10-65 |
| Recommended max payload [kg] | 3-5 | 2-3.5 |
| Closing speed (adjustable) [mm/s] | 190 | 110 |
| Weight [kg] | 1 | 1.7 |
| Position resolution (fingertip) [mm] | 0.03 | 0.05 |
| Kinematics | Parallel/ Encompassing | Parallel/ Encompassing/Centric |

If you already have any of these grippers
 Modularize it yourself by using the **Modular Adapters** we've designed.

Product Identification

Parts are numbered as **ModularGripper-F-T-S**, where **F** corresponds with the original manufacturer, **T** is the rated stroke identifier and **S** is serial number of that particular part.

| | Characteristic | Value | Description | Identifier |
|---|-------------------|-------------------|-------------------|-------------|
| ModularGripper-F-T-S general identifier | Manufacturer (F) | Robotiq | Adaptive Grippers | <i>R</i> |
| | | DH-Robotics | Adaptive Grippers | <i>D</i> |
| | Stroke rating (T) | 50 mm | Hand-E | <i>S50</i> |
| | | 85 mm | 2F-85 | <i>S85</i> |
| | | 140 mm | 2F-140 | <i>S140</i> |
| | | 95 mm | AG-95 | <i>S95</i> |
| | | 140 mm | DH3 | <i>S140</i> |
| Serial number (S) | - | Unique identifier | - | |

Exemplary part numbers:

- **ModularGripper-R-S140-5123X3**: Based on Robotiq’s 2F-140 gripper, with a stroke of 140 mm and serial number 5123X3
- **ModularGripper-D-S95-5123X3**: Based on DH-Robotic’s AG-95 gripper, with a stroke of 95 mm and serial number 5123X3

To obtain more information, please contact Acutronic Robotics’ sales representatives at contact@acutronicrobotics.com