LEARNING PLATFORM: UR5e + rc_Visard + End effector (Schmalz Cobot – Robotiq gripper – Schunk gripper)

DATASHEET

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Price: final price of each component is provided by the corresponding manufacturer. Final price depends on the options chosen for each product and the geographical location (local currency/exchange rate/customs).

All hardware has a URCaps package for communication with the robot manipulator.
# HARDWARE CONFIGURATION

## Robot Manipulator: UR5e (Universal Robots)

- **Payload:** 5 kg, reach 850 mm
- **Power consumption:** approx. 200 W using a typical program
- **IP classification:** IP 54 (robot), IP44 (control box)
- **Connectivity:** I/O ports, RS-485
- **Sensor data:** F/T sensor
- **Programming:** Polyscope graphical user interface on 12 inch touchscreen
- **Advanced programming:** ROS Industry integration, ‘daemons’ running on robot controller
- **Control frequency:** 500 Hz
- **Communication:** Modbus TCP, digital and analog I/Os, Profinet and Ethernet IP, USB ports
- **Other options:** robot manipulator also available with 10 kg payload (UR10e)

## Vision: rc_visard 160m (Roboception)

- **Weight:** 850 g
- **Power consumption:** 20 W
- **IP classification:** IP54
- **Onboard computation (Nvidia Tegra K1)**
- **Connectivity:** 8-pin A-coded M12 socket for GigE, 8-pin A-coded M12 plug for GPIO, power.
- **Sensor data:** camera stream, disparity map, confidence values, ego motion estimation.
- **Programming:** WebGUI, Rest-API, GeniCam, GigEVision, UDP based ego-motion interface, ROS
- **Depth image and resolution:** 1280x960 (F) @ 0.8 Hz; 640x480 (H) @ 3Hz; 320x240 (M) @ 15 Hz; 214x160 (L) @ 25 Hz
- **Ego motion:** 200 Hz
- **Other options:**
  - Sensor is available in both monochrome and color version, and also with a smaller baseline (rc_visard 65, 65 mm baseline).
  - Additional randomDot projector is also available
  - Options for software onboard: Itempick, TagDetect, BoxPick, SLAM
### End-effector: vacuum generator ECBPi (Schmalz)

- **Weight:** 775 g
- **Power consumption:** 13W
- **Suction rate:** 12 l/min
- **Connectivity:** IO-link, NFC interface, digital I/O
- **Data:** vacuum signal
- **Other options:** modular kit for designing the suction cup geometry and distribution

![ECBPi](image1.png)

### End-effector: Robotiq 2F-85 (Robotiq)

- **Weight:** 0.9 kg
- **Power consumption:** 24W
- **IP classification:** IP 40
- **Communication protocol:** Modbus RTU (RS-485), RS-485, RS-232
- **Commanded options:** Stroke, grip force, closing speed
- **Other options:**
  - The gripper is also available with wider stroke, as 2F-140 (140 mm stroke)
  - A Robotiq Universal Controller is also available, to enable communication using Modbus TCP, Ethernet IP, EtherCAT, PROFINET, DEVICE NET, CANopen

![Robotiq 2F-85](image2.png)

### End-effector: Co-Act gripper (Schunk)

- **Weight:** 0.65 kg
- **Power consumption:** 9.6 W
- **IP Classification:** IP 30
- **Communication interface:** digital I/O
- **Options:** gripping force can be adjusted
- **Other options:** connectivity with UR available as feed-through (electrical tool interface) or external cabling

![Co-Act gripper](image3.png)