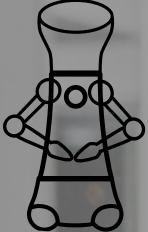


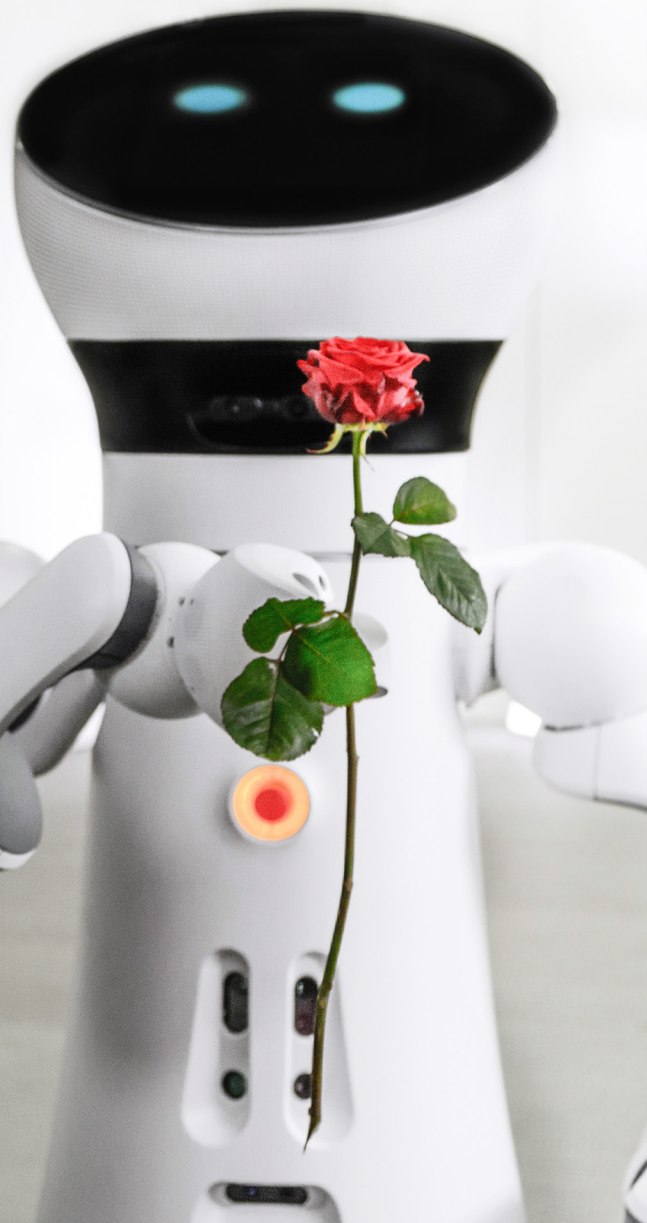


MODULE	COMPONENT/ PROPERTY	VALUE
FULLY CONFIGURED ROBOT		Dimensions (L/W/H): 72/72/158 cm Weight: 140 kg Power Supply: Li-Ion battery 48V External charger 48V@10A Internal levels 48V, 24V, 19V (battery voltage can vary 44V-56V)
		Degrees of freedom: 29 Safety: 3 safety laser scanners with safety PLC 2-channel Safe-Torque-Off (STO) separate for mobile base and torso 2-channel EM-Stop prepared in all modules 2-channel wireless EM-stop Communication: Gigabit Ethernet in all modules Computing: 4-6 Intel NUC i5, 256GB, 8GB RAM
OMNIDIRECTIONAL BASE		Dimensions (L/W/H): 72/72/33 cm Weight: 42 kg Power Supply: Li-Ion battery 48 V External charger 48V@10A Internal levels 48V, 24V, 19V Communication: Gigabit Ethernet / Dual-channel router with DDWRT (2,4GH-z+5GHz) / Low-level: CANOpen Computing Interface: 1x Intel NUC i5, 256GB, 8GB RAM MaxSpeed: 7" touchscreen, power button, break-release, USB port, LAN port 1.1 m/s
TORSO		Dimensions (L/W/H): 43/80 cm Weight: 43,2 kg Power Supply: Power supply from base 48V Internal levels 48V, 24V, 19V Communication: Gigabit-Ethernet Computing: 1-3x Intel NUC i5, 256GB, 8GB RAM Interface: 7" touchscreen Lighting: 58x independent RGB-LEDs in ring
		Torso joint 1-DOF: Max Joint Vel: 200°/sec Joint Limits: -360° to 360° Torso joint 3-DOF: Max Joint Vel: 200°/sec per axis --> ~ ca. 1 bow/sec Joint Limits: -360° to 360° all axis



MODULE	COMPONENT/ PROPERTY	VALUE
ARM AND GRIPPER	ARM	Reach: ca. 90 cm (from center of first ball) Weight: 13,9 kg Degrees of freedom: 7 Communication: CANOpen Motors: Schunk PowerBalls (PRL100, ERB145, ERB115) Payload: 5kg
	GRIPPER	Dimensions (L/H/W): 17/12,5/11 cm Weight: 0,9 kg Degrees of freedom: 2 Communication: USB Camera: 3D-RGBD camera (range 15-200 cm) Light: 1x 3W Daylight LED, 1x 1W (per channel) RGB-LED Laser: Laserpointer, red, <5mW Other Interfaces: 6x configurable GPIO-ports 1x 20MHz SoC with logic blocks, USB, free programmable 1x USB port for external sensors
HEAD	HEAD	Dimensions (D/H): 37/51 cm Weight: 14,7 kg Communication: Gigabit Ethernet Computing: 1x Intel NUC i5, 256GB, 8GB RAM Interface: 15" touchscreen, 2x 20W speaker, 1x mic
		Head joint 1-DOF: Max Joint Vel: 200°/sec Joint Limits: -360° to 360° Head joint 3-DOF: Max Joint Vel: 200°/sec per axis Joint Limits: -360° to 360° all axis
SENSOR RING		Dimensions (DH): 35/9cm Weight: 1kg + custom sensors Communication: Gigabit Ethernet Computing: 1x Intel NUC i5, 256GB, 8GB RAM Speed: 200°/sec Angle Limits: -360° to 360°

