

FRANKA EMIKA - industry
TECHNICAL DATA*

FRANKA ARM	
degrees of freedom	7 DOF
payload	3 kg
sensitivity	torque sensors in all 7 axes
maximum reach	800 mm
velocity	2 m/s end effector speed
repeatability	+/- 0.1 mm (ISO 9283)
interfaces	<ul style="list-style-type: none"> ▪ Ethernet (TCP/IP) for visual intuitive programming with FRANKA DESK ▪ 3x safe input (e.g. for emergency OFF, safeguard input,...) ▪ 1x safe input for external enabling device ▪ CONTROL connector (48V, 2x Ethernet) ▪ gripper connection
interaction and remote control	<ul style="list-style-type: none"> ▪ buttons PILOT HANDLE: guiding, enabling, guiding mode selection ▪ buttons PILOT DISC: navigation pad, gripper control mode, OK, SAVE, CANCEL
mounting flange	DIN ISO 9409-1-A50
standard installation position	upright
weight	18,5 kg
safety design	PL d CAT 3 (EN ISO 13849-1:2008) various safety functions
protection rating	IP30
FRANKA CONTROL	
interfaces	<ul style="list-style-type: none"> ▪ Ethernet (TCP/IP) for Internet and/or shop-floor connection
controller size (19")	350 x 483 x 89 mm (D x W x H)
supply voltage	100 V _{AC} - 240 V _{AC}
mains frequency	47- 63 Hz
active power factor control (PFC)	yes
power connection	IEC 60320-C14
weight	≈ 7 kg
protection rating	IP20
FRANKA HAND	
parallel gripper	with exchangeable fingers
grasping force	force controlled up to 75 N
travel	60 mm within < 0.5 s
communication	internal CAN
FRANKA DESK/ APPS & SKILLS	
platform	via browser on regular devices
architecture	distributed, service-oriented
APP programming	visual & intuitive, dialog-based
deployment/ repository	local or cloud
APPS (purchase and download via FRANKA STORE)	consist of modular SKILLS and workflows, can be composed into TASKs.
SKILLS (purchase and download via FRANKA STORE)	assembly, mounting, testing, handling, assistance SKILLS,... & technology features

FRANKA EMIKA FEATURES

- manual guidance for direct motion teaching
- assisted direct motion teaching including table top teaching
- teaching of TASK relevant hot spots
- control of the contact force
- virtual walls for environment and human protection
- joint limit protection
- self-collision protection
- Cartesian motion
- joint motion
- force & motion wiggling for robust assembly and insertion
- soft robotics control: joint & Cartesian impedance control
- separate elbow control behavior
- collision handling pipeline: detection, isolation, estimation and reaction
- intuitive haptic gestures for direct interaction
- status monitoring
- status streaming to FRANKA CLOUD for predictive maintenance and machine learning

*technical data is subject to change

FRANKA EMIKA - science
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FRANKA EMIKA SCIENCE PACKAGE	
additional interfaces	<ul style="list-style-type: none"> ▪ real-time torque control interface at 1 kHz ▪ real-time position and velocity control interface at 1 kHz ▪ real-time impedance control interface at 1 kHz ▪ measurement feedback at 1 kHz
kinematics & dynamics models	available as real-time libraries
ROS	ROS enabled
C++ API	yes

FRANKA EMIKA SCIENCE FEATURES	
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ADDITIONAL SCIENCE FEATURE	
<ul style="list-style-type: none"> ▪ collision pipeline parameterization 	

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**the concrete system setup depends on the package you order