



FRANKA PRODUCTION 3

FRANKA RESEARCH 3

ESD-Datasheet

FUNDAMENTALS OF TESTING

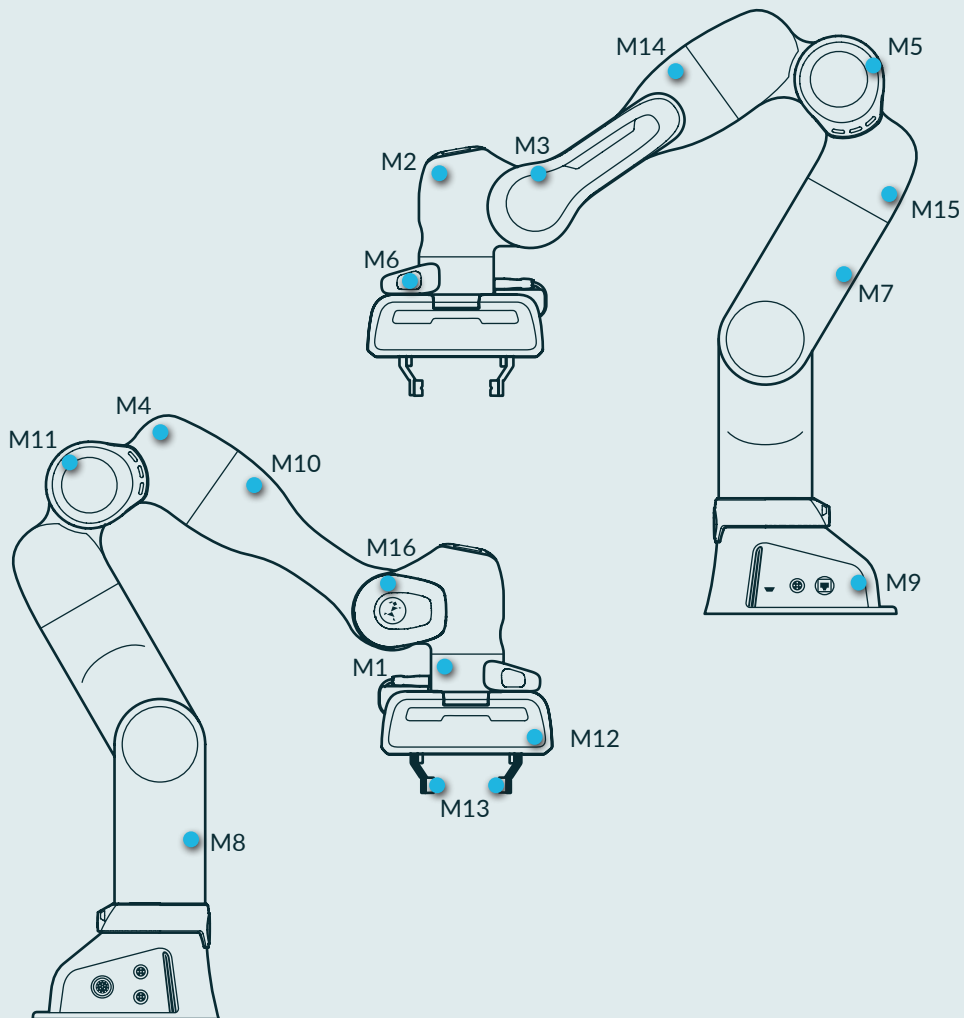
The Franka Production 3 robot was subjected to a test to determine the following parameters:

- Measurement of resistance to ground R_{gp} of the surfaces, contact surfaces and the flange surfaces
 (according to DIN IEC/TR 61340-5-1 and DIN EN 61340-5-2).
- Measurements of existing electric fields / surface voltages after rubbing the surface as well as during operation
 (according to DIN EN 61340-5-1).

Environmental conditions during measurement:

- Temperature: 24,2 °C
- Relative humidity: 44 %

DEFINITION OF MEASURING POINTS



MEASURED VALUES

	Resistance to ground R_{GP} [Ohm]		Electrostatic surface voltage [V]				Electrostatic field [V/m]	
			after friction	after 0,75 h operation			after 0,75 h operation	
limits	< 1 G Ω		< 125 V				< 5000 V/m	
measuring point	FR3	FP3	FR3	FP3	FR3	FP3	FR3	FP3
M1	<50,0 x 10 ⁹	<50,0 x 10 ⁹	10,0	0,0	0,0	0,0	0,0	0,0
M2	27,7 x 10 ⁹	15,2 x 10 ⁹	220,0	850,0	0,0	0,0	1500,0	1350,0
M3	43,6 x 10 ⁹	25,5 x 10 ⁹	38,0	30,0	4,0	0,0	0,0	0,0
M4	23,2 x 10 ⁹	17,8 x 10 ⁹	0,0	13,0	0,0	0,0	0,0	0,0
M5	17,5 x 10 ⁹	19,9 x 10 ⁹	20,0	17,0	8,0	2,0	0,0	0,0
M6	27,7 x 10 ⁹	25,7 x 10 ⁹	258,0	279,0	6,0	0,0	0,0	0,0
M7	30,6 x 10 ⁹	11,4x 10 ⁹	0,0	5,0	0,0	0,0	0,0	0,0
M8	81,7 x 10 ⁹	17,4 x 10 ⁹	150,0	0,0	0,0	0,0	0,0	0,0
M9	29,0 x 10 ⁹	14,4 x 10 ⁹	350	4,0	0,0	0,0	0,0	0,0
M10	72,6 x 10 ⁹	11,9x 10 ⁹	0,0	0,0	0,0	0,0	0,0	0,0
M11	60,2 x 10 ⁹	15,5x 10 ⁹	44,0	12,0	3,0	0,0	0,0	0,0
M12	33,8 x 10 ⁹	10,9 x 10 ⁹	990,0	615,0	0,0	0,0	0,0	0,0
M13	20,2 x 10 ⁹	65,3x 10 ⁹	0,0	0,0	9,0	0,0	0,0	0,0
M14	37,1 x 10 ⁹	15,3x 10 ⁹	0,0	0,0	7,0	0,0	0,0	0,0
M15	2,36 x 10 ⁹	20,3 x 10 ⁹	0,0	9,0	0,0	0,0	0,0	0,0
M16	53,8 x 10 ⁹	33,4 x 10 ⁹	42,0	231,0	12,0	3,0	350,0	400,0

MEASURES

The measured values show that the robot complies with the requirements of DIN EN61340-5-1 (2017 edition) while maintaining the distances to ESD-sensitive electronics.

When integrating the robot into an ESD-sensitive environment, there must be no contact with ESD sensitive electronics. EN61340-5-1 specifies a minimum distance of 25 mm for the values listed.

The fingertips supplied with the Franka Hand must be replaced with a conductive material that is suitable for ESD. For creating new fingertips, you can use the fingertip-configurator at [franka.world](https://franka.world/fingertip-configurator) (<https://franka.world/fingertip-configurator>).

The real values of the integrated robot with regard to the electrostatic surface voltage and the electrostatic field can deviate from the listed measured values due to different environmental conditions.

Therefore a verifying measurement is recommended after integration.