

# force dimension

## sigma.7 haptic device

force feedback interface



With its unique **7 active degrees-of-freedom**, the **sigma.7** is the most advanced master haptic device ever designed by Force Dimension. Its end-effector covers the **natural range of motion** of the human hand and is compatible with **bi-manual teleoperation** console design. Its unique **custom-designed actuators** offer a very high level of forces and torques, making it the most accomplished master device available today. The combination of **full gravity compensation** and **driftless calibration** contributes to greater user comfort and accuracy. Conceived and manufactured in Switzerland, the **sigma.7** is designed for demanding applications where **performance and reliability** are critical.

### applications

The **sigma.7** provides active force and torque-feedback, as well as active grasping for a wide range of applications:

- › medical and space robotics
- › micro and nano manipulators
- › teleoperation consoles
- › virtual simulations
- › training systems
- › research



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## sigma.7

<b>workspace</b>	translation	∅ 190 x 130 mm
	rotation	235 x 140 x 200 deg
<b>forces</b>	grasping	25 mm
	translation	20.0 N
	rotation	400 mNm
<b>resolution</b>	grasping	± 8.0 N
	translation	0.0015 mm
	rotation	0.013 deg
	grasping	0.006 mm

## electronics

<b>interface</b>	standard	USB 2.0
	refresh rate	up to 4 KHz
<b>power</b>	universal	110V - 240V

## software

<b>platforms</b>	Microsoft	Windows XP / Vista / 7 / 8 Windows CE 7
	Linux	kernel 2.6 / 3.x
	Apple	OS X
	QNX	6.5 / 6.6
	WindRiver	VxWorks 6.3 / 6.8 / 6.9
<b>software</b>	haptic SDK	
	robotic SDK	

## features

<b>structure</b>	delta-based parallel kinematics
	hand-centered rotations
	rotations decoupled from translations
	active gravity compensation
<b>calibration</b>	automatic
	driftless
<b>user input</b>	1 haptic programmable button
	4 programmable input channels
<b>safety</b>	velocity monitoring
	electromagnetic damping
<b>options</b>	right- or left-handed
	integration in custom consoles

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