

Fingertracking2

Optical hand and finger tracking for immersive applications

The Fingertracking2 system enables optical tracking of the hand and individual fingers in immersive environments. It is available in three-finger and five-finger configurations and supports up to two users or four hands.



The Fingertracking2 Tactile version additionally provides vibration feedback at the finger thimbles and communicates wirelessly with the tracking controller allowing applications to signal contact with virtual objects.

General Specifications

Parameter	Specification
Available target geometries	left and right hand; two switchable target geometries per hand
Maximum system configuration	up to 2 users / 4 hands
Supplied thimble sets	complete three-finger and five-finger thimble sets included
Supplied thimble sizes	extra small (XS), small (S), medium (M) and large (L)
Hand-target attachment	textile-covered elastic straps
Synchronization	via modulated IR flashes emitted by the tracking cameras
Camera compatibility	compatible with all ART tracking camera systems operating at up to 300 Hz
Hand-target frame rate	up to 300 Hz, depending on selected camera frame rate
Typical detection range	4 - 5 m ¹
LED intensity	adjustable; higher intensity reduces operating time
Software integration	DTRACK SDK, VRPN and ART plugins for Unity and Unreal Engine
Battery type	2 × AAA rechargeable batteries per hand target, included
External battery charger	included
Charging time	approx. 2 h
Charger input	100 - 240 V AC, 50/60 Hz, 0.25 A; or 9 - 12 V DC, 1 A
Charger weight	approx. 0.2 kg
Operating temperature	0 - 35°C
Relative humidity	5 - 85% (non-condensing)
Nominal dimensions hand-target, W x H x D	72 x 77 x 21 mm
Hand-target weight	approx. 85 g, excluding batteries

¹measured using an AT6/M equipped with a 3.5 mm lens, with the target centred in the field of view, default camera settings and low LED intensity settings for Fingertracking2.

Configuration-specific performance

Version	3-finger	5-finger	3-finger tactile
Finger-thimble frame rate (at a hand-target frame rate of 300 Hz)	100 Hz	60 Hz	100 Hz
Vibration feedback	no	no	yes
Typical operating time with vibration feedback enabled	N/A	N/A	6.5 h ^{2,3}
Typical operating time without vibration feedback	9.5 h ^{2,4}	6 h ^{2,4}	8.5 h ^{2,4}
Thimble-set weight	approx. 25 g	approx. 40 g	approx. 28 g

²with new, fully charged rechargeable batteries

³measured using 300 Hz tracking frequency, LED brightness low, two one-second vibration events every five seconds

⁴measured using 300 Hz tracking frequency, LED brightness low, no vibrations

Tactile-version specifications

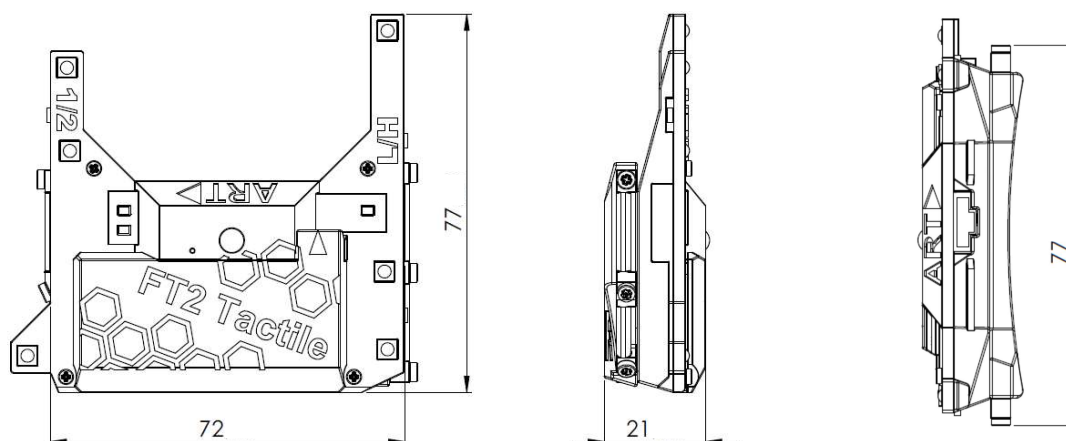
Parameter	Specification
Vibration motor dimensions	2.15 × 8 mm; one motor integrated into each finger thimble
Typical radio range	7 m ⁵
Wireless standard	IEEE 802.15.4 / Zigbee LR-WPAN
Frequency band	2.4 GHz ISM band, 8 channels
Maximum transmission power	3 dBm
USB radio transceiver	included

⁵depending on the installation environment and structural obstacles; the USB radio transceiver can be repositioned using a USB extension cable.

Technical Drawing

all dimensions shown are nominal in [mm] unless otherwise specified

Hand-target



Finger thimbles

Thimble dimensions are identical for the three-finger non-tactile and tactile versions.

Thimble assignments: thumb A, index finger B, middle finger C, ring finger B and little finger D. Ring-finger and little-finger thimbles are not shown.

Size	3-finger: A / B / C	5-finger: A / B / C / B / D
XS	14 / 11 / 12 mm	14 / 11 / 12 / 11 / 10 mm
S	16 / 13 / 14 mm	16 / 13 / 14 / 13 / 12 mm
M	18 / 15 / 16 mm	18 / 15 / 16 / 15 / 14 mm
L	20 / 17 / 18 mm	20 / 17 / 18 / 17 / 16 mm

