

emka TECHNOLOGIES' it1 isometric force transducer

it1 is a transducer for measuring isometric contraction (defined as contraction of tissue without change in length). It is designed for use with the integrated 4-bath setup for studying contractile properties of isolated tissues, such as aorta, trachea and papillary muscles during drug exposure or electrical stimulation.

high precision, high sensitivity

it1 measures forces in the range 0 – 25 g with high sensitivity (0.8 mV/g/V, full scale output 200 mV). **it1** has a stainless steel body and is built with 4 solid-state gauges wired as a Wheatstone bridge. It comes with a 3 m cable and connects to a strain-gauge amplifier via a DIN connector.

Suitable amplifiers are also available from **emka** TECHNOLOGIES.



it1 isometric transducer

in the tissue bath setup

The **it1** transducer is used for setups with manual and automated tissue tensioning with **emka** TECHNOLOGIES' 4-bath setup (see figure).

The force must be measured at a 90° angle from the long axis; the pit on the transducer allows you to correctly position it first time (pit must face upwards).

The upper tissue hook is connected to the **it1** transducer via a swivel, which permits rotatory movement.



4-bath setup for isolated tissue studies (left)

close up of it1 transducer connected to swivel (right)

specifications

force range	0 to 25 g
displacement	0.2 $\mu\text{m/g}$ (2×10^{-5} m/N)
sensitivity	> 0.8 mV/g/V
excitation voltage	10 V DC
full-scale output	200 mV
maximum accepted overload	50 g (0.5 N)
combined error (linearity, hysteresis, repeatability, temperature)	< 0.2% of measuring range
temperature drift	+ 0.05 % / °C
temperature-compensated range	20 to 40°C
input/output impedance	2000 Ω / 1000 Ω
natural frequency response	700 Hz
dimensions	10 mm diameter, 80 mm long