

Isometric Transducers

Cat. No. 7003 / 7004 / 7005 & 7010

General

The three models 7003-7004-7005 cover the range from 0 to 50 g (see table on the facing page). The high sensitivity 7010 is designed for the mg range.

The force exerted on a hollow carbon fibre beam is converted into proportional electric signal via strain-gauges, conveniently wired in Wheatstone bridge circuit.

Model Selection

Ugo Basile transducers are of robust construction and can withstand forces of up to 5-10 times the rated value.

It is possible to use 7003 which is generally used for trachea rings or artery strips, where forces of 5-10 grams are involved, by operating at minimum amplifier sensitivity; however, the cantilever will deflect with a load of the mentioned magnitude

Generally speaking, it is advisable to use a stiff transducer, operating at high amplifier sensitivity, and use the most sensitive transducer only when



Also available from Ugo Basile:

- Tissue Baths, 1, 2, 4-chambers
- Digital Recorder DataCapsule-Evo
- Electrodes & Stimulators

Main Features

- Ugo Basile transducers have been designed for precise measurement of force in muscular preparations under isometric conditions
- An Isometric Transducer measures changes in force at constant length whereas an Isotonic Transducer is basically a displacement meter under constant load

Isometric Transducer Specifications

Model	7010	7003	7004	7005
Electrical				
Excitation Voltage (max.)	6V	6V	6V	6V
Excitation Voltage (typical)	3V	3V	3V	3V
Sensitivity (μV per g per V)	110	70	25	10
Non linearity & Hysteresis	+/-3%	+/-3%	+/-3%	+/-3%
Mechanical				
Force Range	0-800 mg	0-2g	0-10g	0-50g
Overload Rating	5g	20g	50g	200g
Moment of Inertia	7gcm ²	7gcm ²	7gcm ²	7gcm ²
Lever Arm Displacement	0.5 mm/g	0.3 mm/g	0.1 mm/g	0.06 mm/g
Physical				
Weight	270g	270g	270g	270g
Shipping Weight	900g	900g	900g	900g
Packing	29x26x29cm			

Compatibility

Before ordering, check the connection compatibility of your amplifier/recording system.

The Isometric & Isotonic Transducers are normally supplied with a connector (type -F) designed for Ugo Basile DataCapsule-Evo Recorder (see datasheet).

If the customer wishes to make use of other recording apparatus, the transducers can be supplied with appropriate connector on request: we will be glad to provide transducer with different connectors, if available, or to provide wiring information and instruction.

Ordering Information

- 7003** Isometric Force Transducer , type DY1
7004 Isometric Force Transducer , type DY2
7005 Isometric Force Transducer , type DY3
7010 High-Sensitivity Transducer , type DY0

Bibliography

Isometric Transducers 7003, 7004, 7005

- H. Ellers et alia: "Pungent General Anesthetics Activate Transient Receptor Potential-A1 to Produce Hyperalgesia and Neurogenic Bronchoconstriction" *Anesthesiology* 112: 1452-63, 2010
- A. Rizzo et alia: "Effects of rosiglitazone, a PPAR- α agonist, on the contractility of bovine uterus in vitro" *J. vet. Pharmacol. Therap.* 32, 548-551, 2009
- L. Natale et alia: "Interleukins 1 Beta and 6 Induce Functional Alteration of Rat Colonic Motility: An In Vitro Study" *Eur. J. Clin. Investigation* 33 (8): 704-712, 2003
- D. Mitolo-Chieppa et alia: "Involvement of κ -Opioid Receptors in Peripheral Response to Nerve Stimulation in κ -Opioid Receptor Knockout Mice" *Autonomic & Autacoid Pharmacology* 22:4: 233-239, 2002
- M.R. Accomazzo et alia: "Leukotriene D4-Induced Activation of Smooth-Muscle Cells From Human Bronchi Is Partly Ca²⁺-Independent" *Am. J. Respir. Crit. Care Med.* 163:1: 266-272, 2001
- M. Shalev et alia: "Stimulation of P2y Purinoceptors Induces, Via Nitric Oxide Production, endothelium-Dependent Relaxation of Human isolated Corpus Cavernosum" *J. Urol.* 161: 955-959, 1999
- M.C Breschi et alia: "Effects of Noise Stress on EFS-Mediated Cholinergic and Inhibitory NANC Responses in Tracheae from Normal and Sensitized Guinea-Pigs" *J. Autonomic Pharmacol.* 17:6: 353-363, 1997
- M.K. Sim et alia: "Presence of an Endothelial Esterase in the Rat Aorta: Effects on the Actions of Ester and Non-Ester Muscarinic Antagonists" *Endothelium* 1: 109-114, 1993

High-Sensitivity Transducer 7010

- L.W. Tait et alia: "Hagfish natriuretic peptide changes urine flow rates and vascular tensions in a hagfish" *Comparative Biochemistry and Physiology C* (150) 45-49, 2010
- G. Foldi et alia et alia: "Activity of saponin from Croton lechleri on rat vascular and gastric smooth muscles" *Phytomedicine* 16: 768-775, 2009