



Isometric Transducers

Cat. No. 7003 /7004/7005 & 7010

General

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

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

Model Selection

The 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 this magnitude

Generally speaking, it is advisable to use a stiff transducer, operating at high amplifier sensitivity, and use the most sensitive transducer only when the forces involved are very small.



ISOTONIC TRANSDUCER
see separate leaflet

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	0-2 mg	0-10 mg	0-50 mg
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
Weight	270 g	270 g	270 g	270 g
Shipping Weight	900 g	900 g	900 g	900 g

Compatibility

The Isometric & Isotonic Transducers are normally supplied with a connector designed for UGO BASILE Unirecord 7050 & Gemini 7070 (see note below).

If the customer wishes to make use of other recording apparatus, the transducers can be supplied with appropriate connectors on request.

An optional DC Power Supply (single or multiple channel) is available for connecting the Isometric Transducer to amplifier/recording systems where excitation voltage is not available at the input connector. Quotations on request.

IMPORTANT NOTE :

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

The grey plastic connector mounted on the Transducers manufactured before 1990 (RTG 18) has been replaced by a cylindrical, all metal model of ECTA. Adaptors are available.

Bibliography

Isometric Transducers 7003, 7004, 7005

- E. Koç et alia: "Does Antinerve Growth Factor Affect Iso-lated Ileal Contractility in Rat" *Physiol. Res.* 54: 313-318, 2005
- 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 Puri-noceptos 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
- F. Petraglia et alia: "Effect of Corticotropin-Releasing Factor-Binding Protein on Prostaglandin Release from Cultured Maternal Decidua and on Contractile Activity of Human Myometrium in Vitro" *J. Clin. Endocrinol. Metabol.* 80:10: 3073-3076, 1995
- 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

- E. Poli et alia: "Presynaptic Histamine H2 Receptors Modulate the Sympathetic Nerve Transmission in the Isolated Rat Vas Deferens; No Role for H3-Receptors" *Inflammation Research, Birkhäuser Basel* Vol 43, No.3-4: 95-100, 1994
- G.P. Sgaragli et alia: "Calcium Antagonist and Antiperoxidant Properties of Some Hindered Phenols" *Br. J. Pharmacol.* 110: 369-377, 1993