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PAIN and INFLAMMATION

# PAM

PRESSURE APPLICATION MEASUREMENT

Cat. No. 38500

## General

The new P.A.M. (Pressure Application Measurement) from Ugo Basile is a novel, easy-to-use tool for measuring mechanical pain threshold in experimental **joint hypersensitivity models in rodents**.

The PAM device has been designed and validated specifically for the mechanical stimulation and assessment of **joint pain**, and therefore is especially useful in studying **arthritis**.

The PAM applies a quantifiable force for **direct stimulation of the joint** and automatic readout of the animal response.

The operator simply wears on his/her thumb a special force sensor, specially designed to apply force to **rat and mouse joints**, and measures the force which elicits the animal response (normally, limb withdrawal).

Each PAM device comes standard with two force sensors, a **large one** useful for stimulating rat joints, a **smaller sensor** recommended to test mice; an optional **paw transducer/applicator** is also available, to stimulate the animal paw.

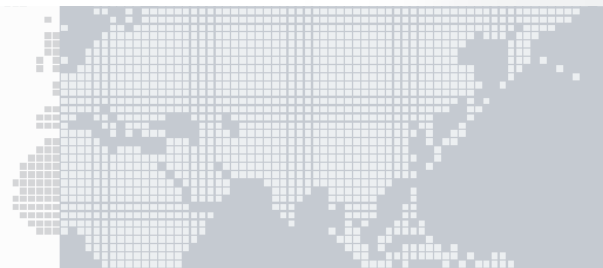


Joint Pain

Arthritis

MECHANICAL PAIN  
THRESHOLD IN:

- Joint Hypersensitivity
- Chronic Joint Inflammation



## Main Features

- Rat and Mouse Transducers included
- Maximum Applicable Force: 1500g
- Resolution: 0.1g
- Automatic recording of Limb Withdrawal
- User-controlled application of pressure directly to the joint
- DCA Software included - NEW 2014 release

Ugo Basile: more than 25,000 citations

## Rationale of the Technique

Arthritis is associated with chronic, debilitating pain in the joints. Current metrics of arthritic pain in animal models are indirect, by scoring the level of motor activity or the animal weight distribution (Barton et al. 2007); while correlating well with the level of joint pain, their metric is a composite picture of complex pain responses, and provides little direct information about local stimulation and locally-evoked responses.

The quantification of localized joint hypersensitivity is not common in animal experiments; in this sense the PAM device represents a step forward toward multifactorial measurement of pain-related behavior in animal research; the **PAM** is the **first instrument designed specifically to apply force to the joint** and automatically detect the animal response.

## Instrument Configuration

**Pressure transducers:** the PAM device comes with 2 transducers, each tested and validated. Both flat and round, the **large transducer** is suitable for rat, the **small one** is ideal for mouse.



Fig. 1: "Joint Transducer"

An optional **paw transducer/applicator** is also available, rapidly transforming the PAM into a Digital Randall-Selitto for pressure application on paws, muscles, tail.



Fig. 2: "Paw Transducer"

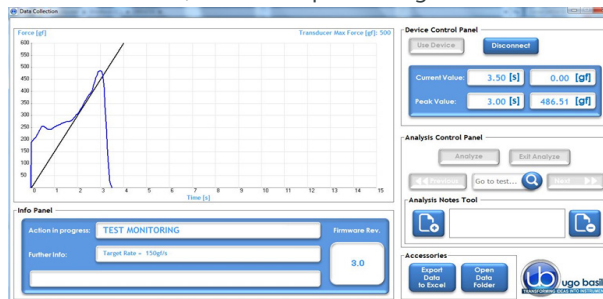
**Electronic Unit:** the compact PAM controller connects to the mains or can be battery-operated. A foot pedal switch is provided for manual score of the peak force.



Fig. 3: "PAM device standard package (38500), shown with pedal switch, small and large joint transducer and Usb cable".

## Data Monitoring and Storage

The device includes as standard both a control unit with internal memory and a software for signal monitoring, data transfer and analysis. Saved data can be browsed on the control unit and/or transferred to a PC in proprietary, .xls or .txt format, for further processing.



## Acknowledgements

The PAM was invented and validated in the University of Edinburgh by the team of Prof. Daniel McQueen, Susan Bond and colleagues and Dr. Harry Brash, who built the first prototypes.

## Ordering Information

<b>38500</b>	<b>PAM</b> , standard package, including:
<b>38500-001</b>	Electronic Unit
<b>38500-002</b>	<b>Large</b> Joint Transducer
<b>38500-003</b>	<b>Small</b> Joint Transducer
<b>38500-011</b>	DCA Software (on USB Key)
<b>38500-302</b>	Instruction Manual (on USB Key)
<b>38500-303</b>	Pedal Switch

All components lodged in a dedicated plastic case

### Options

<b>38500-006</b>	Paw Transducer
<b>38550</b>	PAM, high-pressure model for large animals*

### Physical

Weight	1.4 Kg (in the plastic case)
Shipping weight	2.7 Kg
Packing	46x38x27cm
Shipping Weight	27.50 Kg approx

## Bibliography

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- D. Amorim et alia: "Amitriptyline reverses hyperalgesia and improves associated mood-like disorders in a model of experimental monoarthritis" *Behav. Brain Res* 265: 12-21, 2014
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- **38550 (\*)**: P. Di Giminiani et alia: "Capsaicin-induced Neurogenic Inflammation in Pig Skin: A Behavioural Study" *Res. In Vet Science* 96(3): 447-453, 2014