

**NEW,
SMARTER
CONTROL
UNIT**

Exactly, how accurate
pressure data do you need?



samba preclin
EXCITINGLY SMALL™

Measurements with exciting opportunities

Just imagine the exciting things you can do with an extremely accurate, fast sampling pressure sensor – that is no bigger than a grain of salt on a hair. Exciting opportunities open in all kinds of life science applications. The Samba Preclin transducer is also completely insensitive to all type of electro-magnetic fields.

Monitoring more straightforward than ever
With a Samba Preclin transducer, intravascular blood pressure (IBP) and left ventricular pressure (LVP) monitoring become more straightforward than ever. Inserted through the carotid or femoral artery you can receive accurate, high-resolution data to support your discoveries. Read, for example, how Chiba University in Japan used Samba Sensor's equipment in their research on myocardial infarction in *Nature Medicine* Vol. 11, No. 3, 2005.¹

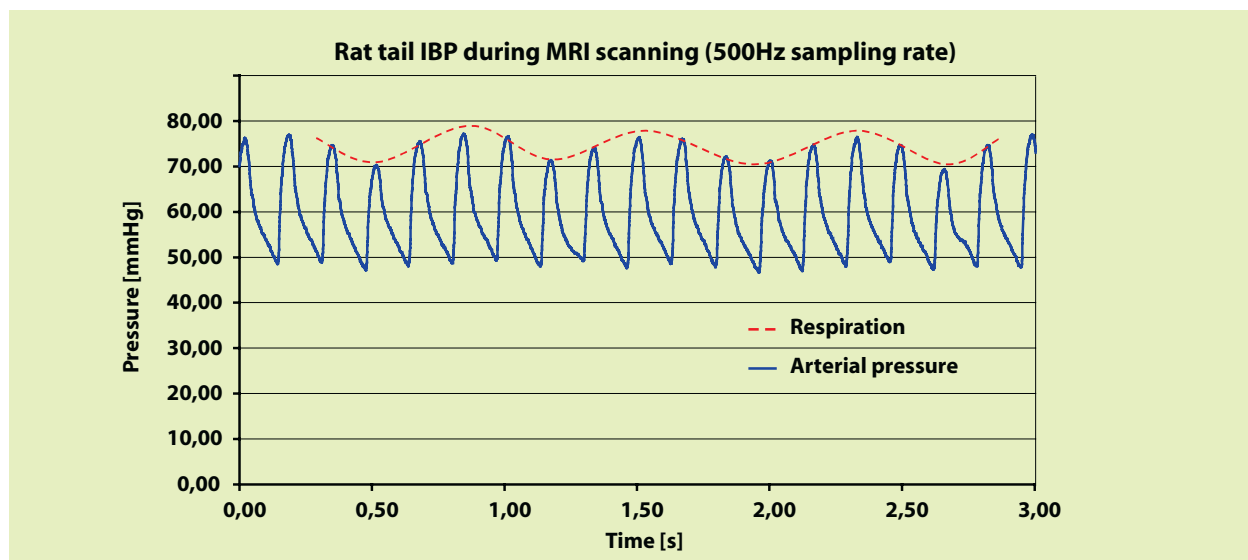
Pressure patterns never observed before
The small size allows you to insert the sensor directly into the brain tissue or in the brain



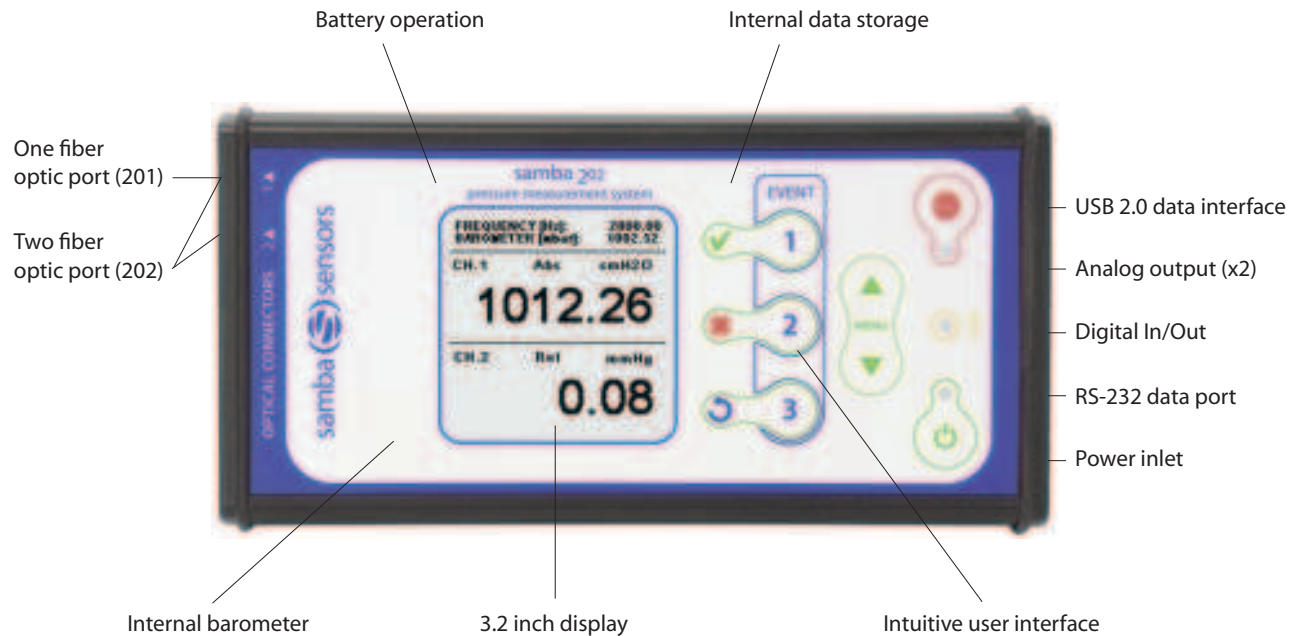
ventricles and measure very rapid trauma events. The extremely fast sampling rate and sensitivity enable you to see pressure patterns never observed before. A perfect example of these possibilities can be found in an article in *European Journal of Neuroscience* Vol. 21, No. 10, 2005.²

Insensitive to all electro-magnetic fields

Samba Preclin offers exciting opportunities when using MRI-scanners. The sensor gives you total freedom to monitor pressure while simultaneously capturing images in the latest high-end scanners. Gating also becomes more reliable and robust with the Samba Preclin transducer. If placed in the tail artery of a rat, both IBP and respiratory signals can be captured using a single sensor (see chart below).



B. Bjelke, MD, PhD. Karolinska Institute, Stockholm, Sweden 2003.



The new smart portable Samba 201/202.

Why Samba Preclin?

- Pressure can be measured with higher precision and in places previously not possible.
- Continuous pressure data can be retrieved in real time during MRI/CT/PET/SPECT scanning.
- A new tool to facilitate scientific work and improve results.
- New science and knowledge can be revealed leading to more publications.

Where to use Samba Preclin?

Preclinical research in the area of:

- Heart and Circulation
- Brain and Nervous System
- Lungs and Breathing
- Digestive System
- Kidney and Urinary System
- Reproduction System
- Muscles
- Diseases like Cancers, Stroke, Spinal Disorders and more

How to use Samba Preclin

The primary feature is the miniature size: 0.36 or 0.42 mm depending on version. The transducer can be applied into a tiny organ or tissue and smoothly inserted without causing unnecessary harm. Once in place, the transducer will not affect the actual environment it is set to measure.

The Samba Preclin transducer is also safe, meaning that no electricity and no bio-hazardous materials are involved. It is also insensitive to any form of electro-magnetic fields to make it fully compatible with high-end imaging technologies such as MR, CT, PET and SPECT.

If scanner triggering is desired the blood pressure signal can be used in favour of ECG to further increase image quality.

Ref. 1. Harada M et. al., "G-CSF prevents cardiac remodeling after myocardial infarction by activating the Jak-Stat pathway in cardiomyocytes", Nature Medicine, Vol.11, No. 3, pp. 305-311, 2005.

Ref. 2. Krave U et. al., "Transient, powerful pressures are generated in the brain by a rotational acceleration impulse to the head", European Journal of Neuroscience. Vol. 21, No. 10, pp. 2876-82, 2005.

samba preclin

420/360 PRESSURE TRANSDUCERS

The Samba Preclin pressure transducer comprises a silicon sensor element mounted on an optical fibre. Each transducer is calibrated at the factory before delivery to eliminate the need for customer calibration. The calibration data is stored on a



small EPROM positioned on the connector and is read automatically at start up.

TECHNICAL SPECIFICATIONS

Sensor diameter	0.36 mm (high pressure)/0.42 mm (low pressure)	Accuracy -0.1 to 5 bar	±10 mbar and ±2.5% of reading (-0.1 to 3 bar) or ±10 mbar and ±4% of reading (3 to 5 bar)
Fiber diameter	0.25 mm (bare fiber)/0.40 mm (fiber with radiopaque coating)	Accuracy -0.1 to 10 bar	±15 mbar and ±2.5% of reading
Calibration	Factory calibration	Accuracy -0.1 to 17 bar	±20 mbar and ±2.5% of reading
Measurement media	Fluid or gas	Temperature coefficient -50 to 350 mbar	<0.2 mbar/°C (20-45°C/ 68-113°F)
Tolerated bend radius	10 mm	Temperature coefficient -0.1 to 5 bar	<3.5 mbar/°C (20-45°C/ 68-113°F)
Available pressure ranges	Low pressure: -50 to 350 mbar	Temperature coefficient -0.1 to 10 bar	<7 mbar/°C (20-45°C/ 68-113°F)
	High pressure: -0.1 to 5 bar	Temperature coefficient -0.1 to 17 bar	<14 mbar/°C (20-45°C/ 68-113°F)
 -0.1 to 10 bar	Long term stability	<0.5% of range
 -0.1 to 17 bar	Storage temperature	-40 to +80°C (-40 to 176°F)
Accuracy -50 to 350 mbar ..	±0.5 mbar and ±2.5% of reading (-50 to 250 mbar) or ±4% of reading (250 to 350 mbar)	Transducer length	4 m (13,1 ft) or 10 m (32,8 ft) for MRI

samba 201/202

The new Samba control unit is a compact, portable and battery operated unit equipped with internal memory for temporary data storage. The Samba 201 has one fiber optic port, while the Samba 202 is fitted with two ports, which allow for extended operations. The individual calibration data stored on the EPROM of each connected Samba transducer is automatically read by the control units to ensure exact



measurements. The USB 2.0 data interface simplifies the data transmission to your computer and the 3.2 inch display performs sharp figures.

TECHNICAL SPECIFICATIONS

Fiber optic ports	1 (Samba 201), or 2 (Samba 202)	Analog output	0-5V
Resolution	0.1 mbar (~1 mm H ₂ O; Samba Preclin 420 transducer)	Battery operation	up to 8h (2 channels at 40 kHz)
Numerical resolution	15 bit	Operating temperature	15-35°C (59-95°F)
Data sampling rate	1 to 40 000 Hz	Display	3.2 inch, monochrome
Measurement	Absolute/Relative/Diff; Samba 202)	Dimensions	215 x 110 x 45 mm (8.5 x 4.3 x 1.8 in)
Outputs	USB 2.0, Analog out, RS-232	Weight	950 g (2.1 lbs)

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