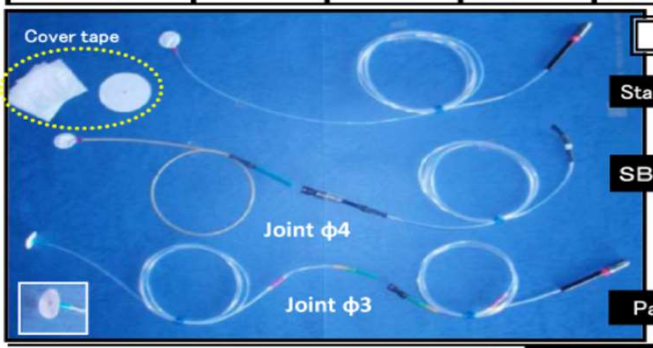
## Main System — for stockings / bandages

| Models | 1ch/Handy | 2ch/Extend | 5ch/Desktop | 10ch/Desktop | 1ch/Desktop | 1ch/Desktop and many points are possible | | |
|---|---|---|---|---|---|---|---|---|
| | AMI 3037-2 | AMI 3037-2B | AMI 3037-5S-Ⅱ | AMI3037-10-Ⅱ | A0101-G35k-Ⅱ | A0905-SA-Ⅱ | AMI3037-SB-hP-Ⅱ | AMI3037-SB-mH-Ⅱ |
| Unit of pressure | convert the voltage | convert the voltage | kPa | | kPa | kPa (or mmHg) | hPa | (mmHg) |
| ch | 1 | 2 | 5 | 10 | 1 | 1 | 1 | 1 |
| Measuring Range | 0～34.00 kPa | | 0.00～35.00 kPa | | 0.0～35.0 kPa | 0.0～35.0 kPa | 0～350 hPa | 0～263 mmHg |
| Air-pack (φ20) | — | | — | | — | 0.0～20.0 kPa | 0～200 hPa | 0～150 mmHg |
| Measuring Accuracy in 23℃ Environment | 0～14.00/±0.1 kPa<br>14.00～34.00/±0.25 kPa | | 0～14.00 ±0.2 kPa<br>14.00～35.00 ±0.3 kPa | | 0～14.00 ±0.2 kPa<br>14.00～35.00 ±0.3 kPa | | ±2 hPa | ±2 mmHg |
| Output | 1kPa → 0.1V (100mV) | | | | 1kPa → 0.01V(10mV) | | — | — |
| Numerical display | — | — | LED 5ch | LED 10ch | LED 1 ch | LED 1 ch | LED 1 ch | LED 1 ch |
| Durable Pressure | up to 70 kPa | | | | | | up to 700 hPa | up to 500 mmHg |
| Power supply | AC100V(11VA)<br>AA battery/1.5v×4 | supplied by the left instrument | AC90～250V<br>22.5VA | 45VA | AC100V<br>30VA | AC100V<br>30Va | AC100V<br>30VA | |
| Air-Cylinder | Optional attachment : AMI3037-AC/ Black, red, green, and blue | | | | | Equipped by machinery | Equipped by machinery | |
| Air-pack Which is connected | Standard:AMI3037-P2,AMI3037-P5/Parasol type : AMI3037-P2P,AMI3037-P5P | | | | | φ20/?m<br>AMI3037-SB-P3/P5 | AMI3037-SB-P3/P5(φ20/?m) | |
| Zero adjustment | Adjustment by screw | | Reset switc/hzero switch | | Automatically | | Automatically | |
| Applicable Environment | 0～45℃ RH. 25～85% | | | | | | 0～45℃ RH. 25～85% | |
| External Dimensions | W92×H45×D160 | | W510×H240×D230 | | W245×H65×D175 | | W245×H65×D175 | |
| Weight | 0.6Kg | 0.6Kg | 8Kg | 10Kg | 2Kg | | 2Kg | |
| Feature | Small and a Battery | Small and a Battery | Measure 5ch at the same time | Measure 10ch at the same time | The consecutive output | The consecutive output/Many points are possible | Watch numerical value/Many points are possible | |

## Air-Pack Model・Standard:AMI3037-P2 (Two),AMI3037-P5 (Five) /Parasol type:AMI3037-P5P (Five),AMI3037-P10P (Ten)

| Product number | ① | ②stock size | ③ | ④ | ⑤ | ⑥ | ⑦Finger use | ⑧⑨／⑩ |
|---|---|---|---|---|---|---|---|---|
| Size (mm) | φ15 | φ20 | φ25 | φ30 | φ8×L=28 | φ20×L=30 | φ12×L=15,φ15×L=17 | |
| Size & Tube Length | φ15/1.5m・2m | φ20/2m・3m | φ25/2m・3m | φ30/2m・3m | I/1.5m・2m | G/2m・3m | φ12×15/1.5m | |
| Parasol type (φOP) | — | φ20P/2.5m | φ25P/2.5m | φ30P/2.5m | T/1.5m・2m | GP/2.5m | φ15×17/1.5m | |
| for A0905 and AMI3037-SB | — | SBφ20/1m・0.5m | Model A0905: Can use the special air-pack | | | | | ⑧⑨Tube is connected under a bag or set in the bag. |
| Max. Measuring range (Approx.) | 10 | 20 | 30 | 38 | 15 | 20 | 15 | |
| Measuring accuracy (sensitivity to soft material) | ±0.2 | ±0.1 | ±0.1 | ±0.1 | ±0.25 | ±0.1 | ±0.3 | |
| Size Cover tape/Models | φ47/AMI3037-PTS | | φ47/AMI3037-PTB | | — | | | |
| Air Cylinder | Black(half ofRed) | Red | Green | Blue | Black | Red | Black | |
| Main Applications (mm) | Sphere of φ15 or larger | Sphere of φ20 or larger (standard) | Sphere of φ25 or lager but with small curvature | Sphere of φ30 or lager but with small curvature | Objects of 8 in width and 28 in length or longer. For belts, flat cords, side of fingers. | Objects of 20 in width and 30 in length or longer. For averaged portion of shoulder of coats. | Objects of 12 in width and 15 in length or longer. For fingers, etc. | |

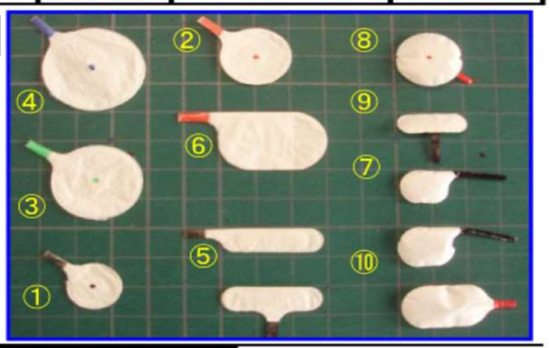


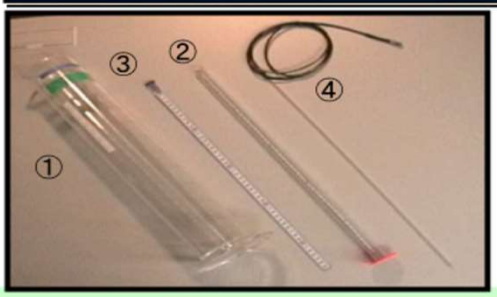

Air-Pack

Standard

SB type

Parasol type




| Pressure Calibration Unit | |
|---|---|
| Models | AMI3037-CS |
| Calibration Range | 0～4.5 kPa |
| Compositions | |
| ①Fine Chemical Cylinder | φ95×L=500 |
| ②Scale | L=500 |
| ③T-shaped bar | φ50 L=500 |
| ④Pipe with tube | φ6×L=500 1.5m |
| Weight | 1kg |

For the abnormal management of the measurement


AMI

**AMI Techno co.,ltd.**

fax:+81-3-5339-7414 3-5-3-1313, NISHI-SHINJUKU, SHINJUKU-KU,TOKYO,160-0023,JAPAN

E-mail:ami-tec@m2.pbc.ne.jp http://www.ami-tec.co.jp

≪THE EXCLUSIVE OVERSEAS DISTRIBUTOR≫

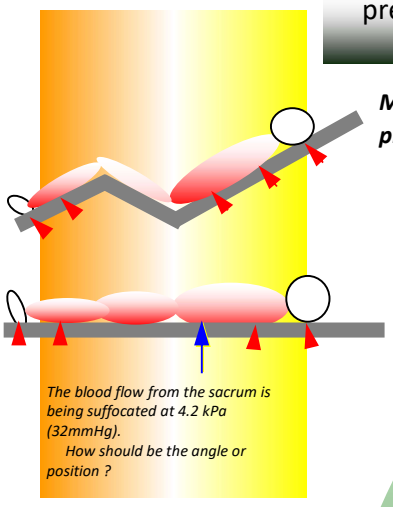
**SANKO TSUSHO co.,ltd.**

tel:+81-3-5777-3627 fax:+81-3-5777-3629

TOKYO,JAPAN E-mail:sales@sankotsusho.co.jp

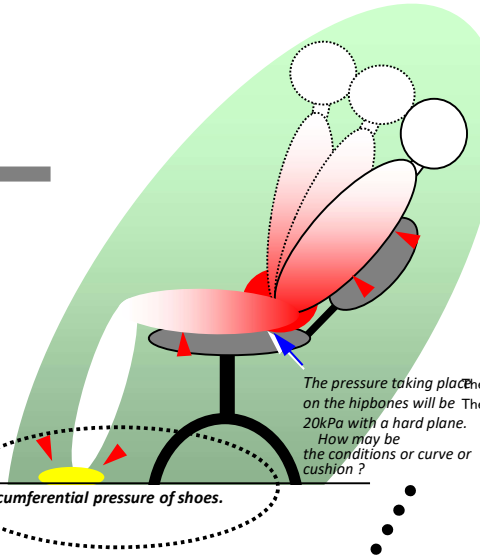
# Air-pack type contact surface pressure continuously measuring system

**Air-pack type :** Air packed in an air-bag is put between two contacting materials and air-pressure brought about inside that air-bag is measured.



The blood flow from the sacrum is being suffocated at 4.2 kPa (32mmHg).
How should be the angle or position ?

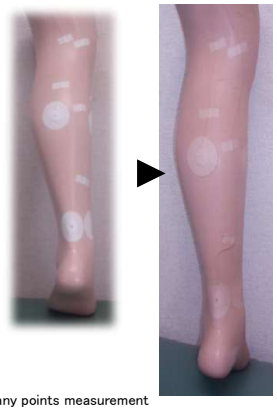
***Measurement of body pressure and of pressure in its sitting attitude.***



The pressure taking place on the hipbones will be 20kPa with a hard plane.
How may be the conditions or curve or cushion ?

*Circumferential pressure of shoes.*

***Measurement of pressure appearing in clothes.***



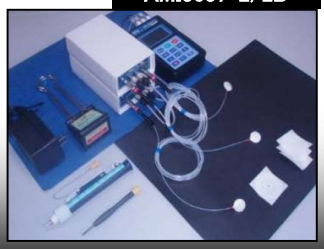
The many points measurement
The time change is measured with the sensor worn.

**A0101-G35-AC-Ⅱ**

*New*

**AMI3037-10-Ⅱ**

**AMI3037-2/2B**



Living body (soft condition) can be measured.

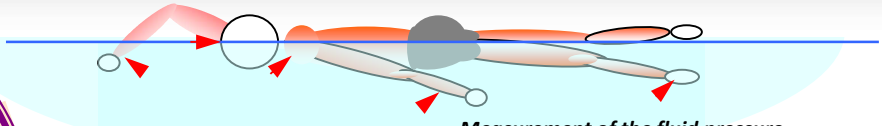
**AMI3037-SB-Ⅱ**

**You can measure just by pulling the knob**

**A0905-SA-Ⅱ**

Both the living body (soft condition) and the dummy (hard condition) can be measured.

***The accuracy of the measured value can be certified by the water pressure calibration method.***



*Measurement of the fluid pressure*

**・・・Measured by water pressure calibration method・・・**

Surface Pressure
Blood Flow
Skin Temperature

model A0010

model A0203

**Patented**

U.S.A.: U.S.Pat.5522966 July 13,1999
Europe: E.P.Pat.0831313 August 9,2000
JAPAN 3268601 January 18,2002

Air enclosure method contact pressure／PT#,5601489
Cylinder-shaped expansion-style contact pressure calibration method／PT#,5522337
Pressure sensor, built-in system ／PT#,5601489

**Usage**

- Contact pressure
- Restraint pressure
- Body pressure
- Clothes pressure
- Pressure by sitting
- Flexibility
- Calibration
- Molding of foaming materials


≪MANUFACTURER≫
**AMI Techno CO.,LTD.** TOKYO,JAPAN

≪THE EXCLUSIVE OVERSEAS DISTRIBUTOR≫
**SANKO TSUSHO CO.,LTD.** TOKYO,JAPAN
Tel: +81-3-5777-3627 **E-mail: sales@sankotsusho.co.jp**

**≪Reliability≫** Measurement with soft sensor for soft plane → air and soft bag → The influence on contact surface is extremely little and reproducibility is good.

This contact surface pressure measuring system is a system to measure a surface pressure of a soft material to which the sensor of this system is in contact and to correct errors in the reading to be brought about by a thermal change in the environment. This system has been approved by patent authorities in several countries in the world as a unique system to be able to effect a reliable measurement of a contact pressure of soft materials with a high reproducibility. This system does not require any special preliminary correction for the reading to be usually made before use. This system can also make a continual measurement sequentially.

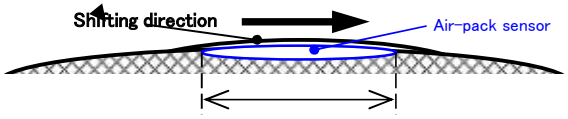
## Air-pack method

An air is enclosed between two contacted surfaces and the pressure of that enclosed air is measured externally from the contacted surface. Into a flat bag made with a flexible film of a least possible elasticity, an air is enclosed in the thickness of 1mm.

## Feature

(1) It is easy to stick each part of the living body and between ruggedness of the cloth and reproducibility is good in 20mm (standard) diameter. The center part of the bag comes in contact with the point when it is too large and the situation is changeable and reproducibility worsens partial pressure it. For exsample, only the center of the air pack comes in contact in the ankle that the ruggedness is 30mm in diameter.

**Section**




Non-elastic material and Not expanding by pressure

(2) The influence of the air pack that infuse some air in 1mm in thickness becomes thinner because of pressure sinks softly of the living body and the clothes is extremely little. However, when infusing in 1.5mm in thickness and measuring it in the cylinder of $\phi$100, the value about 1.3 times 1mm in thickness was confirmed.

(3) The circle shape mounted to body part easily. The result change by the direction when designed besides the circle. For exsample, the top becomes the mean value of the lowering area high in surroundings in the measurement with the hemisphere.

(4) In piping in the tube of 1mm that doesn't collapse, it is unaffected in the piping situation catching the transformation of the bag of the air pack (alteration in volume). The result change for a soft material such as silicon rubber in the piping situation.

## Each error in measurement

①Permissible error＋②Measuring area error＋③Position error＋④Restoration of tools material＋⑤Attitude error

**①Permissible error:** Describes in the specification.

**②Measuring area error:** The difference of the characteristic the mounted position, the figure and the softness of the air pack sensor is caused.

**③Position error:** The value changes partially in how like hitching and a horizontal gap to match it when setting it to the measurement site when tools are installed. The error is somewhat caused though putting the sign and the line in tools in detail, and improving accuracy are necessary.

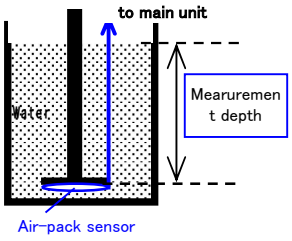
**④Restoration of tools material:** The difference of the restoration is caused by the sweat, the expansion in the rig frequency.

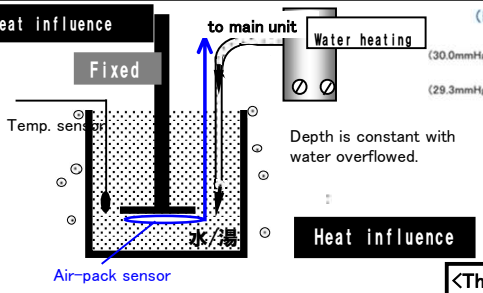
**⑤Attitude error :** It influences pressure in transmission and the weight shift of the material tension because of the difference among the posture angle, arm and the head position.

**Note:** In the measurement of body pressure to know the distribution pressure is important. However, the method of paving the seat sensor in the distribution pressure measurement and the calling contact surface and the measurements has the anxiety in reproducibility and the measurement accuracy. Non-elastic film seat enclosed between two contacted surfaces and A flexible characteristic and the contact friction are completely changed and it is not easy to call bodey

## Calibration for contact pressure and heat influence

The plane pressure can be calibrate by mounting the air pack to horizontal plate. The contact surface is hardness for horizontal plate and softness (living body) for water side.

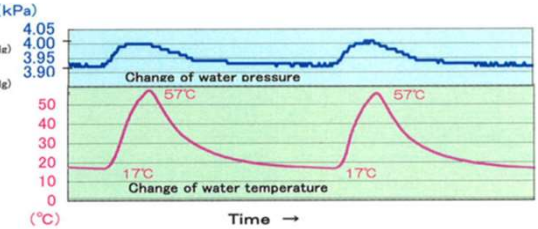



Depth is constant with water overflowed.

Water thermally controlled by a water heating apparatus is poured into a vessel and is held at a constant water level. The Air-Pack is fixed horizontally in water in the depth of 400 mm.

【Result】
change 40℃ is shown to be 0.1 kPa




**Heat influence**

Specific gravity of water: 4℃=1. 000 20℃=0. 998 30℃=0. 996 40℃=

**<The reasons why a thermal effect is so small are as follows:>**

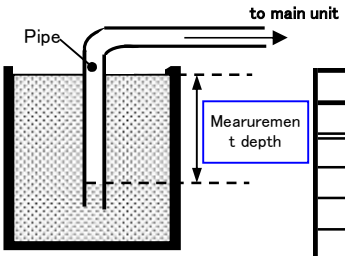
①Although a thermal expansion factor of air is 1/(273+atmospheric temperature), a voluminal swell of the Air-Pack to thickness direction is only a little because its shape is flat.

② Because an amount of the enclosed air is smaller than the maximum voluminal capacity of the Air-pack, there is a sufficient remaining capacity inside the Air-pack to be able to absorb a swell of the enclosed air.

③ In actual measurement, a swell to the thickness direction of thee

## 【Calibration for pressure sensor and output】

A pressure on horizontal plane corresponding to the water pressure can be got by measuring the water depth.



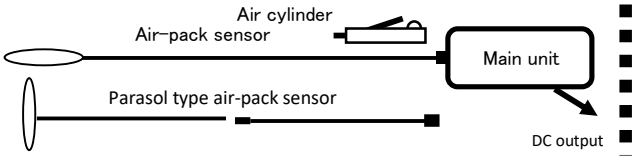

| | | | | | Model | AMI3037-2, 5S, 10 | | A0101 / A0905 | |
|---|---|---|---|---|---|---|---|---|---|
| SI unit | | Former unit | | | | DC output | | DC output | |
| hPa | kPa | (gf/cm$^2$) | (mmH$_2$O) | (mmHg) | | DC V | DCmV | DC V | DCmV |
| 10 | 1 | 10.2 | 102 | 7.5 | | 0.100 | 100 | 0.010 | 10 |
| 0.98 | 0.098 | 1 | 10 | 0.736 | | 0.010 | 9.8 | 0.001 | 0.98 |
| 0.098 | 0.0098 | 0.1 | 1 | 0.074 | | 0.001 | 0.98 | 0.0001 | 0.1 |
| 1.333 | 0.1333 | 1.36 | 13.6 | 1 | | 0.013 | 13.3 | 0.0013 | 1.3 |

## Purpose of use for pressure measuring device

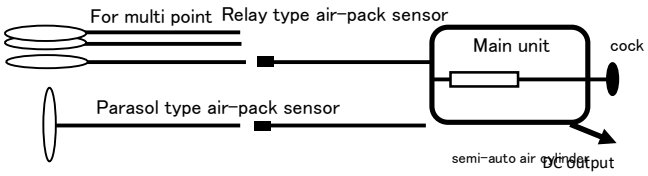
The measurement accuracy and reproducibility are confirmed the reproduction of a flexible plane contact environment. Error margin confirmation of secular distortion and confirmation of unexpected value when measuring it. It is not necessary to calibration before each measurement. * Because the standard of the contact pressure (ISO and JIS, etc.) in soft respect is not decided, the proofreading examination such as the inspecting agencies cannot be done under the present situation.

# System

An air infuse to the air-pack sensor with air cylinder. And it connect to main unit and air-pack sensor mount to the body.




The air-pack sensor connect to the body in advance and wear the clothes. An air infuse to air-pack sensor with internal air cylinder by pulled the cock.




(fomer) Accessary : Air cylinder

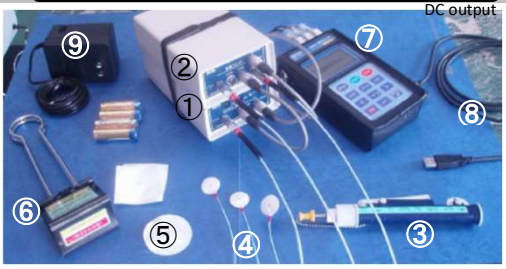
◀ 2 type measurement ▶

## ●<1ch・3ch・5ch・7ch…>Handy type/Extension AMI3037-2 (1ch) / Extension unit AMI3037-2B (2ch)

**Main unit internal model/Semi-auto air cylinder**

**Feature:** **2 type power supply** /The output signal is DC voltage and small main unit with dry battery (4 AA batteries) and AC adaptor (AC100v). It automatically changes to the AC adaptor when the battery consumed.

**Add channel**/ Main unit AMI3037-2 is 1 ch and it can add each more 2 ch /1 unit with extension unit AMI3037-2B.




Composition: ①Main unit/AMI3037-2(1ch)、②Extension unit AMI3037-2B(2ch)、③Air cylinder/AMI3037-CY ④Air-pack sensor 5pcs/AMI3037-P5、⑤Covering tape(200sheet)/AMI3037-PT,⑨AC adapter/AMI3037-AC ● Calibrationset/AMI3037-CS accessary: ⑥Press tester ●screw driver for zero

Option: ●Data logging device fo PC AM8051 (6ch) Accessary : software ●USB communication cable ●A C adapter (for data logger)

## ●<5ch・10ch> Main unit AMI3037-5S-II (5ch) AMI3037-10-II (10ch)

**Accessary: Air cylinder**


**Feature:** **Main unit (10 ch desktop type):** For multi-point measurement with DC voltage output, it can measure the multi-point at one time and the data transfer to the data logger.

Composition: ①Main unit/AMI3037-10(10ch) ③Air cylinder/AMI3037-AMI3037-CY ④Air-pack sensor 5pcs X 3set/AMI3037-P5 X 3 ●Covering tape(200sheet)/AMI3037-PT ●Calibration set/AMI3037-CS, accessary: ⑥Press tester ⑦screw driver for zero adjust

Option : ●Data logging device for PC (10ch or more)

## ●<1ch> Main unit with display (Auto zero adjust) A0101-G35-AC (1ch)

**Accessary: Air cylinder**

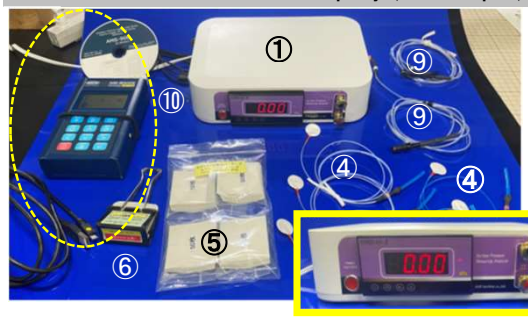
**Feature:** **Auto Zero Adjust:** 1 ch with the output signal (DC voltage output).Auto zero adjustments after turned on the power. AC100V power supply.


Composition: ①Main unit/A0101-G35-AC(1ch) ④Air-pac sensor 3pcs/SB-φ20/0.5m・1m ⑤covering tape(200sheet)/AMI3037-PT ⑩output cable ● Calibration set/AMI3037-CS, accessary: ⑥press tester(small)

Option: ●Data logging device fo PC AM8051(6ch) Accessary :software ●USB communication cable ●AC adapter (for data logger)

## ●<1ch> Main unit with display /DC output/Auto zero adjust) A0905-SA-35k (1ch)

**semi-auto air cylinder**




<2 air cylinders in the equipment>

**For multipoint** : Air-pack sensor previously mounted to the part and measurement tools install to the body. And the air infuse by the built-in air cylinder.Only the number of air packs repeats the measurement. Moreover, the change can be measured by being reconnected and measuring it after time passes with the air pack mounted.

**Semi-auto air cylinder 2type<Black/Red>** : It can select that air amount of infusion enclosed by the shape of air-pack and hardness on the measurement side.I case of Air-pack sensor φ20, pull the red cock for soft living body with thickness 1mm and pull the black cock for hard materials with thickness 0.5mm.

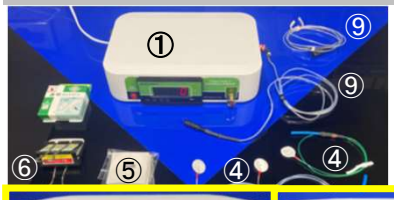
**Auto Zero Adjust** : 1 ch with the output signal (DC voltage output).Auto zero adjustments after turned on the power.

Composiotion: ①Main unit/A0905-SA-35k(1ch) ⑨relay tube 1. 5m ④Air-pac sensor 3pcs/SB-φ20/0.5m・1m ⑤covering tape(200sheet)/AMI3037-PT ⑩output cable ●Calibration set/AMI3037-CS, accessary: ⑥press tester(small)

Option: ●Data logging device fo PC AM8051(6ch) Accessary :software ●USB communication cable ●AC adapter (for data logger)

## ●<1ch> Mai unit with display (for multipoint) AMI3037-SB-hP (hPa)/mH (mmHg) (1 ch) <stocking/bandage>

**semi-auto air cylinder**





<In-equipment air cylinder>

**Feature:** **For multipoint** : Air-pack sensor previously mounted to the part and measurement tools install to the body. And the air infuse by the built-in air cylinder.Only the number of air packs repeats the measurement. Moreover, the change can be measured by being reconnected and measuring it after time passes with the air pack mounted.

**Auto Zero Adjust** : 1 ch with the output signal (DC voltage output).Auto zero adjustments after turned on the power.

①Main unit/AMI3037-SB(1ch)、⑨relay tube1. 5m④Air-pack sensor 5pcs/SB-φ20/0.5m・1m、⑤Covering tape(200sheet)/AMI3037-PT、accessories⑥press tester(small)