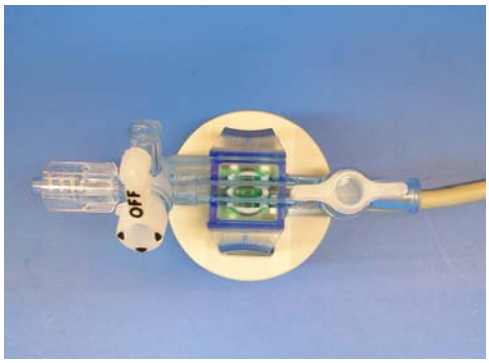
Arterial pressure transducer APT300



- inexpensive
- reliable
- accurate
- stopcocks included
- easy to fill
- simple holder for rod mount

The APT300 transducer is an inexpensive pressure transducer which can be used to measure arterial blood pressures on all species, even on mice with high heart rate.
It can be used for measurement of arterial pressure in vivo as well as for perfusion pressures in isolated perfused organs such as heart or kidney. It also can be used to measure isovolumetric left ventricular (balloon) pressures in isolated hearts from mice up to rabbits or pigs.

The transducer consists of a contact plate with cable and the exchangeable transducer head, which can easily be replaced. Contact plates with cables for different amplifier types are available.

APT300 contact plate with cable
Please read this carefully before use.

Product description:
APT300 pressure transducers can only be connected to the amplifier (e.g HSE TAM-A or TAM-D) in conjunction with the contact plate and the appropriate connector. The contact plates are made from high quality materials and are designed to give long service if handled and cleaned correctly.
The electrical operation of contact plates and amplifier connectors should be checked every time a new pressure sensor is installed. Zero point balancing of the pressure transducer should be made daily. If zero point balancing cannot be carried out check first the correct connections to the contact plate and amplifier. If you don´t get it working, the pressure transducer, should be replaced.

Cleaning:
The components should be wiped clean with a surface disinfectant and a soft cloth. Normal, alcohol based commercial disinfectant should **not** be used.
If contact plates become heavily soiled clean them carefully. Generally ensure that the amplifier connector and the contact plate is not placed in fluid. If this does happen, the connector must be completely dried and checked by a medical technician before it can be used again!
The contact pins of the contact plates can also be cleaned with a soft brush, (e.g. toothbrush) or sponge.

Cleaning restrictions:

1 Cleaning the contact pins with hard objects, such as a knife or a screwdriver, may cause damage, which can result in malfunction or failure of the entire measuring system.

2 The electrical components should not be cleaned by ultrasound under any circumstances.

3 Hot cleaning methods (e.g. washing machine at 95°C) should not be used.

4 The contact plate and amplifier connector should not be electrically operated during cleaning.

5 The following substances should not be used for cleaning: spirits, benzenes, ether, phenols, acids of any kind, caustic substances, phenol-based disinfectants and peroxide compound.

6 Contact plates and amplifier connectors should only briefly come into contact with disinfectant for cleaning purposes. Avoid under all circumstances storing in a disinfectant bath.

Storage:

If contact plates and amplifier connectors are not used, they must be stored in a dry, dark place (cupboard) at room temperature.

Restrictions of use:

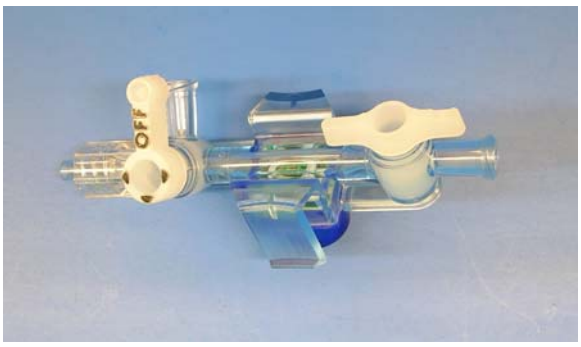
1 Contact plate and amplifier connector cables should not be kinked or routed over sharp edges.

2 The plug connection should not be broken by pulling on the cable.

APT300 pressure transducers (including contact plate with cable) for different amplifier types are available.

Catalog No.	**Product**
73-3862	APT300 pressure transducer for HSE PLUGSYS Modules
73-3863	APT300 pressure transducer for Harvard UK Transducer Interface
73-3864	APT300 pressure transducer for Grass Amplifiers
73-3865	APT300 pressure transducer for Gould 6600 Series
73-3866	APT300 pressure transducer for ADI amplifier ML110 or ML112
73-3867	APT300 pressure transducer for ADI amplifier ML118 or ML119
73-3878	APT300 pressure transducer for DSI/PONEMAH 7700 amplifier

APT300 Pressure Transducer System
Product description:



Please read this carefully before use.

The APT300 pressure transdcuer system consists of a pressure transducer head, which is mounted on a special contact plate. The electrical connection is made by four contact pins connecting the cylindrical lower part of the transducer head, appropriately guided by keys and slots. The pressure transducer head is mounted on the contact plate vertically with the stopcock upwards. The wings of the transducer head snap-fit in the contact plate to protect the system against accidental disconnection. The pressure transducers head can be removed upon squeezing the wings.
A 3m long cable connects the transducer head via the contact plate to the amplifier. The APT300 system is avaialble for different amplifier types with different connectors. Special connectors on request.

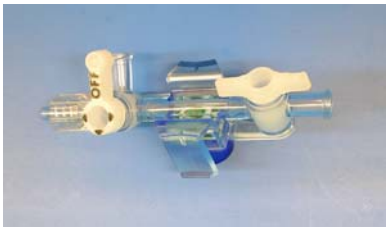
Two different holders are provided for attaching the APT300 contact plates in horizontal position.

Indication for use:
The APT300 transducer system is specified for use in the invasive measurement of blood pressure or perfusion pressure in isolated perfused organ systems in different applications, whereby the mechanical pressure is converted to an electrical signal.

Introduction:
The following points need to be observed before the APT300 pressure transducer system is ready to operate:

- APT300 pressure transducers may only be used with the suitable contact plate
- To establish a reliable electrical connection, the pressure transducer head must snap-fit in the contact plate.

Application:
The application as described relates to the APT300 pressure transducer with three-way stopcock and one way stopcock.



Connect the the APT300 pressure transducer head to the contact plate. To do this, make sure that the side wings of the transducer housing engage in the contact plate. The electrical connection between the pressure transducer and the contact plate is established at the same time.

Ensure that the contact plate is connected to the amplifier.

Put the amplifier into operation. Please bear in mind that electronic equipment needs at least five minutes to reach operating temperature and to operate without drift.

Filling:
Fill the APT300 pressure transducer bubble free with saline solution by using a syringe.

Close off the catheter line with the 3-ways stop cock attached to the pressure transducer (OFF arm of the stop cock points in the direction of the horizontal port where the catheter is connected). Attach a syringe on the top port of the 3-way stopcock. Open the one way stopcock and fill the transdcuer bubble free. Close the one-way stopcock.
Bear in mind that air rises, and priming should therefore always take place from a lower level.

Open the three-way stopcock of the pressure transducer towards the catheter line (OFF arm points to the one way stopcock) and fill the catheter line with your syringe. Check for air bubbles.

Zero-point balancing:
Position the pressure transducer in such a way that the top outlet of the integrated 3-way stopcock is at the same level as the organ which is to be monitored.

Open the top outlet of the 3-way stopcock to the atmosphere, by turning the tap 90° anticlockwise (OFF arm points in the direction of the catheter line). The transdcuer sees now the surrounding air pressure.
Carry out the zero-point balancing on the amplifier in accordance with the manufacturer's instructions (e.g. press AUTO ZERO button on HSE TAM amplifier).

Calibration of upper Calibration point, e.g. 100mmHg:
Attach a calibration device e.g. a HSE KAL84 pressure calibrator to the top outlet of the 3-way stopcock. Attach a pressure of 100mmHg and calibrate your recording device (chart recorder or Data Acquisition System). Adjust you calibration and check that your recording system shows Zero if the 3-way stopcock is openend and 100mmHg if the KAL84 is attached.

After all this is done return the 3-way stopcock to its initial position, so that the top outlet of the 3-way stopcock is closed.
The pressure transducer and amplifier set is now operationally ready for continuous pressure monitoring. If the system cannot be put into operation in the manner described above, repeat the application steps. If any function faults which might arise cannot be resolved, the function of the amplifier must be checked or, if necessary, a new pressure transdcuer must be fitted.

The housing of the contact plate and cable and the monitor connectors must not be wetted with fluid or disinfectants. An electro-chemical reaction could corrode the contacts if they become wet.

During the priming and flushing process, make sure that the electrical connection does not come in contact with fluid.

In the event of wetting, there is a risk of measurement signals being distorted, which may lead to a misleading display of the pressure values, and even to the complete failure of the pressure display.

The pressure transducer must not be taken out of the contact plate without squeezing the tabs (wings) of the housing. To take off the pressure transducer, press the housing tabs (wings) together at the grip depressions and remove the transducer; otherwise there is a risk that the contact pins may be damaged or the tabs of the pressure transducer may break off.

The connections of the amplifier connectors must not be released by pulling on the cables. To separate the connection, always hold the housing firmly, since otherwise there is the risk of wire break.
Protect the contact pins of the contact plate against the effects of external force. If any of the contact pins are damaged, the contact plate must be replaced.

If the pressure transducer cannot be connected easily to the contact plate, check the sitting of the transducer and the positioning of the contact pins.
If handled correctly, the pressure transducer will be guided in the contact plate by the guide slots. When making the connection, never apply force to the transducer or the plate.

Cleaning instructions:

Clean the components such as the contact plate, amplifier connectors by spray disinfection or use a soft cloth with disinfection. **Use mild cleaning agents only**. Normal, alcohol based commercial disinfectant shouId **not** be used.
The contact pins of the contact board must not be cleaned with hard objects. Damage to the contact pins may lead to malfunctioning or even to complete failure of the system.

If you cannot obtain a correct transfer signal after the pressure monitoring system (chart recorder or DAQ system) has been connected, the pressure curves drift, or if the value displayed deviates considerably, the measuring set-up and the measuring chain must be checked for proper function. If errors repeatedly arise, a new system must be fitted.

Technical data:

Operating range	-300 to 300 mmHg
Maximum permissibe pressure	4000 mmHg
Sensitivity	5 µV/V/mmHg (±1%)
Temperatur related sensitivity	< 0.1% / °C
Linearity and hysteresis error	< 1,66%
Temperture realeted zero drift	< 0.2mmHg / °C
Zero offset maximum	< 25mmHg
Excitation voltage	2 – 15 V DC (or AC up to 5kHz)
Isolation against fluid	> 5000V
Defibrillation resistance	5 discharges of 360 joules at 50 Ohm load within 5 min
Operating temperature range	+15° to +40°C
Storage temperature	-25° to 70°C
Volume displacement	< 0.04 mm^3/100 mmHg
Output impedance	356 Ohm ±1%
Frequency response	> 500Hz

We reserve the right to make technical alterations.

APT300 cable, colors for connection to DC bridge amplifiers:

+ Excitation	yellow
- Excitation	white
+ Signal	green
- Signal	grey

Replacements and spare parts:

APT300 pressure transducers (including contact plate with cable) for different amplifier types are available.

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73-3862	Pressure transducer for HSE PLUGSYS Modules
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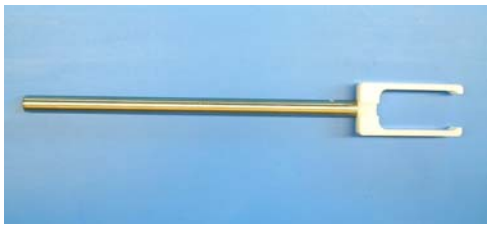
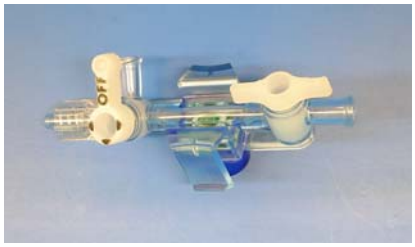
73-3867	Pressure transducer for ADI amplifier ML118 or ML119
73-3878	Pressure transducer for DSI/PONEMAH 7700 amplifier
73-3860	Replacement cable for HSE amps
73-3861	Replacement APT300 transducer head
73-3868	Holder for APT300 transducer, 8mm rod, length 160mm
73-3869	Holder for APT300 transducer, 8mm rod, length 75mm
73-3870	Parallel clamp mounts on 8mm OD rods (only used for LVP balloon systems)
73-0566	Perspex block clamp to mount transducer on a rod
73-0500	Stand with block clamp for 8mm rods



Holder 73-3868, rod length 160mm

Holder 73-3869, rod length 75mm



Replacement head 73-3861

Replacement contact plate with cable for HSE Amps 73-3860

Accessories for BP measurement in vessels
PE tubing and fitting LUER stub needles

3m	30m	PolyE No.	Diameter IDxOD mm (inch)	French scale	PE# Equiv.	needle	luer stub needle	OD
BS4 59-8321	**BS4 59-8322**	100	0.28 x 0.61 (0.011 x 0.024)	1.8	10	30 g	72-5491	0.32mm
BS4 59-8323	**BS4 59-8324**	120	0.38 x 1.09 (0.015 x 0.042)	3.2	20	27 g	72-5475	0.41mm
BS4 72-0191	**BS4 72-0192**	140	0.40 x 0.80 (0.016 x 0.031)	2.4	-	26 g	72-5467	0.46mm
BS4 72-0193	**BS4 72-0194**	160	0.50 x 1.00 (0.02 x 0.039)	3.0	-	24 g	72-5451	0.56mm
BS4 59-8325	**BS4 59-8326**	200	0.58 x 0.96 (0.023 x 0.038)	2.9	50	23 g	72-5443	0.61mm
BS4 59-8327	**BS4 59-8328**	240	0.76 x 1.22 (0.030 x 0.048)	3.7	60	21 g	72-5427	0.81mm
BS4 59-8329	**BS4 59-8330**	260	0.86 x 1.27 (0.034 x 0.050)	3.8	90	20 g	72-5419	0.91mm
BS4 59-8331	**BS4 59-8332**	280	0.86 x 1.52 (0.034 x 0.060)	4.6	100	20 g	72-5419	0.91mm
BS4 72-0195	**BS4 72-0196**	300	1.02 x 1.98 (0.04 x 0.078)	5.9	-	18 g	72-5411	1.22mm
BS4 59-8333	**BS4 59-8334**	320	1.14 x 1.57 (0.045 x 0.062)	4.7	160	18 g	72-5403	1.22mm
BS4 59-8335	**BS4 59-8336**	340	1.19 x 1.70 (0.047 x 0.067)	5.1	190	18 g	72-5403	1.22mm
BS4 59-8337	**BS4 59-8338**	360	1.40 x 1.90 (0.055 x 0.075)	5.7	200	17 g	72-5403	1.42mm
BS4 72-0197	**BS4 72-0198**	380	1.50 x 2.70 (0.059 x 0.106)	8.1	-	16 g	72-5395	1.63mm