

B – TRAVAIL A FAIRE EN ANGLAIS

**3 – Répondez, en anglais, aux questions suivantes en formulant des énoncés complets :
(5 points)**

a) What are the 8000 D series transmitters used for?

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b) How is the measuring cell protected from the environment?

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c) What does the quality of the measurements depend upon?

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d) What sorts of adjustments can you make?

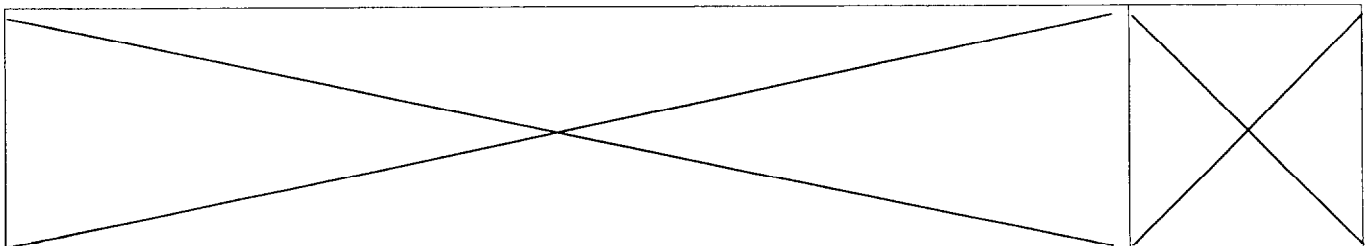
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e) What makes frequent checks more necessary? (give two reasons)

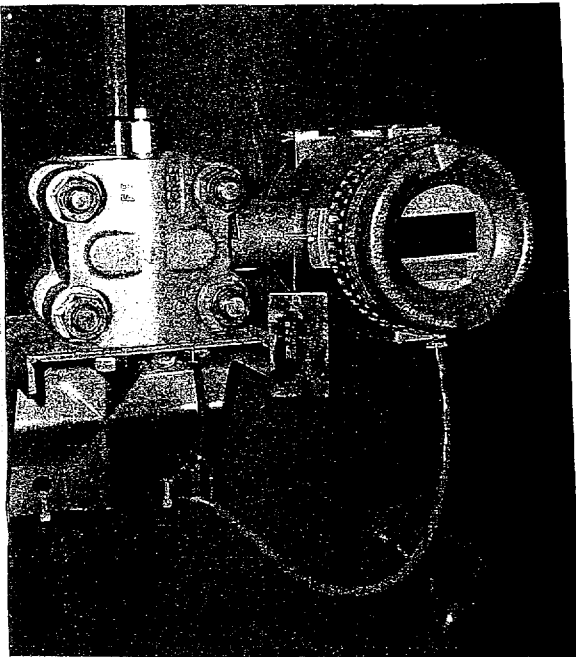
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BEP Maintenance des Équipements de Commande des Systèmes Industriels		N° d'anonymat
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TECHNICAL MANUAL FOR 8000 D SERIES TRANSMITTERS



1. APPLICATION

The 8000 D Series transmitters are designed for measurements of differential, gauge and absolute pressures of corrosive or non-corrosive fluids. The output signal is a 4 to 20 mA current, proportional to the measured pressure.

2. STRUCTURAL CHARACTERISTICS

The transmitter is divided into two main parts:

- the measuring body
- the electronic housing.

The measuring cell consists in two identical half-shells clamping a measuring diaphragm. It has on both sides a core welded to its centre. This made provides symmetry, flexibility and accuracy under static pressure.

A stainless steel housing protects the cell from the environment. It provides a passage for the 4 wires of the coils.

3. INSTALLATION

Whatever the measurement to be made: differential or gauge pressure, flow rate or level, the quality of this measurement will depend upon the correct installation of the transmitter and the pipe connections.

The 8000 D series is designed for the most severe applications; nevertheless, the transducer is customarily installed in such a way as to reduce to a minimum any effects due to temperature variations, and to eliminate shock and vibration.

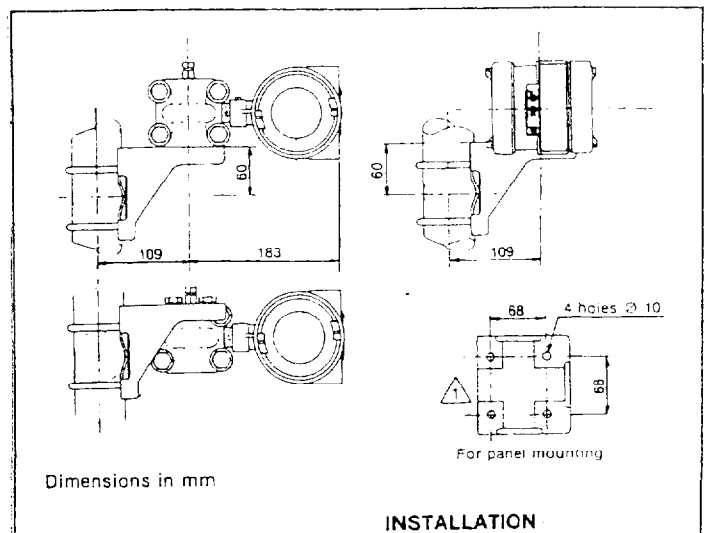
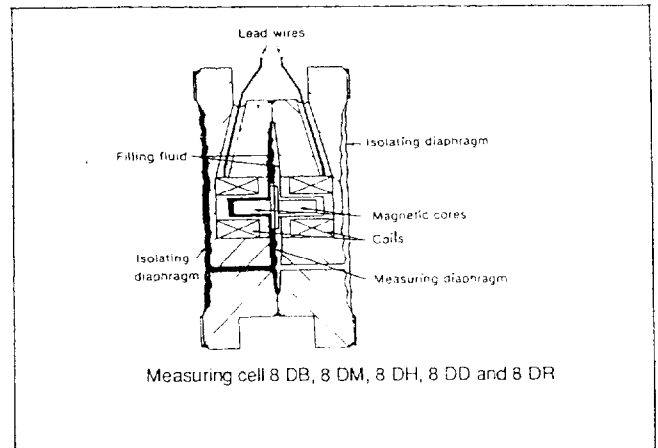
3.1 Mounting

The differential pressure transmitters of the 8000 D series can be mounted by means of a 3-valves manifold. If these valves are located near the measuring point, the connecting pressure pipes can support them. Otherwise, the transmitter can be mounted, using a support suitable for mounting on a 2'' (or 60 mm) pipe or on a panel.

The process connections are made on the flanges which have 1/4'' NPT tapped holes.

To ensure a hermetic seal, tighten the adapter screws with a torque of 5.2m daN.

The transmitter can be turned as desired. With vertical flanges, the rotation causes no zero offset. If the flanges are horizontal, the zero must be reset.



3.2 Pressure inputs

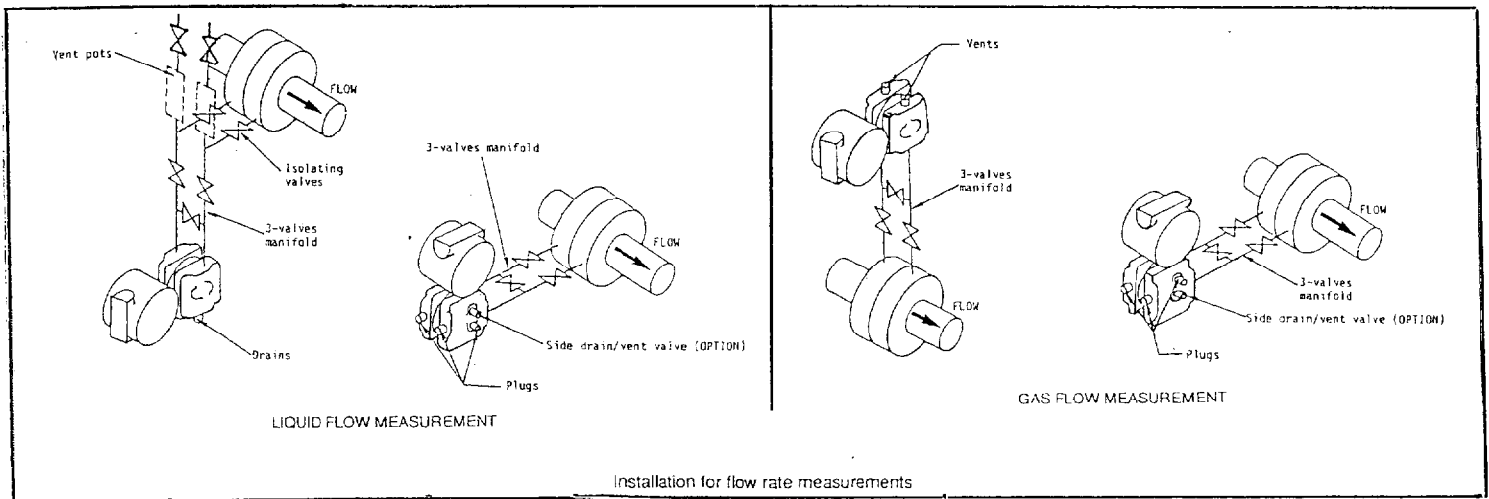
The location of the transmitter depends upon the process. As a general rule:

- Avoid excessively hot process radiation or splashes due to a corrosive process on the transmitter.
- Prevent obstruction of the pressure connections by a solid matter or products coming from the piping.
- The levels of the liquid contained in the pipes connected to the pressure inputs should be identical.
- The pressure connection should be as short as possible.
- Avoid sudden temperature variations.

For measurement of liquid, gas or vapor flow rates, the pressure inputs should be located in accordance with standard practice.

In the case of liquid flow measurement, the pipes should be filled without air or gas. Mount the transmitter preferably below the primary element. If the primary element is inserted in a vertical pipe, provide drip pots at the high points.

For a gas flow measurement, mount the transmitter above the primary element so as to evacuate the condensates by the connecting pipes. For wet gas flow measurement, fill the pipes and use drip pots at the low point. In the case of flow measurement of condensable gas or vapor, use condensate pots.



4. ADJUSTMENTS

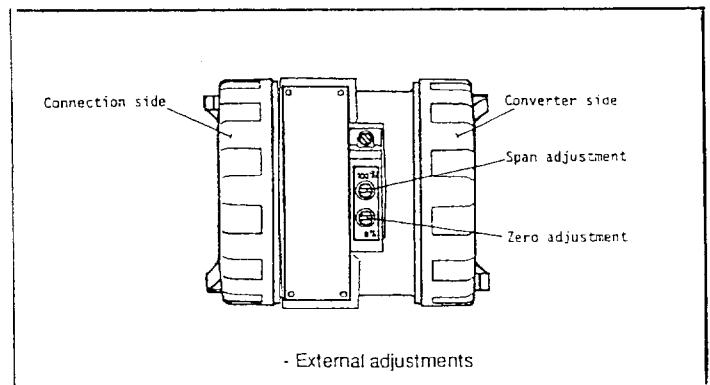
The zero (0%) and measuring range (100%) adjustment screws are accessible from the outside after having lifted the black flap.

The output signal increases by turning the screw in the clockwise direction.

The zero range and range adjustments are independent (no interaction of the range adjustment on the zero).

The measurement zero can be shifted:

- zero suppression (positive offset): 84% of the maximum span
- zero elevation (negative offset): 100% of the maximum span.



5. MAINTENANCE

The transmitters of the 8000 series have no moving parts.

Routine checks are necessary. The frequency of these checks is determined by the user as a function of the desired accuracy and the severity of operating conditions (temperature, vibration...)

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CORRIGÉ – "TECHNICAL MANUAL FOR 8000D"

I. COMPTE-RENDU :

La fixation du transmetteur peut se faire à l'aide d'un manifold 3 robinets/valves si le transmetteur est placé à proximité du point de mesure (1 point). Sinon, le transmetteur peut être fixé sur un support adapté au montage sur tube 2" ou bien sur un panneau. (1 point)

L'orientation du transmetteur peut être verticale ou horizontale (dans le second cas, il faut réajuster le zéro). (1 point)

Les précautions à prendre lors de la mise sous pression sont :

- d'éviter les radiations et les projections de produits corrosifs sur le transmetteur. (0,5 point)
- d'empêcher que des solides ou des produits provenant des tuyaux obstruent les prises de pression. (0,5 point)
- De vérifier que les hauteurs du liquide contenu dans les tuyaux raccordés sont identiques. (0,5 point)
- D'éviter les variations de température (0,5 point)
- et la mise sous pression doit être aussi brève que possible. (0,5 point)

Si le fluide à mesurer est un liquide, le transmetteur doit être placé au-dessous de l'élément primaire et si la canalisation est verticale on doit prévoir des pots de purge aux points hauts. (2 points)

S'il s'agit de mesurer un gaz, le transmetteur doit être monté au-dessus de l'élément primaire. (0,5 point)

En cas de mesure de gaz humide, on doit utiliser des pots de purge aux points bas. En cas de mesure de gaz condensable ou de vapeur, on doit utiliser des pots de condensation. (1 point)

TOTAL : 9 points

II. TRADUCTION :

Quelle que soit la mesure à effectuer : pression différentielle ou pression relative, débit ou niveau (1 point); la qualité de la mesure dépendra de l'installation correcte du transmetteur (1 point) et des tuyaux de raccordement (0,5 point).

La série 8000 D est conçue pour fonctionner dans les conditions les plus difficiles (1 point). Cependant, on installe généralement le capteur de manière à réduire au maximum (1 point) les effets dus aux variations de température (1 point) et à éviter les chocs et les vibrations (0,5 point).

TOTAL : 6 points

III. QUESTIONS :

a) The 8000 D series transmitters are used for measurements of differential, gauge and absolute pressures of (corrosive or non-corrosive) fluids. (1 point)

b) The measuring cell is protected from the environment by a stainless steel housing. (1 point)

c) The quality of the measurements depends upon the correct installation of the transmitter and the pipe connections. (1 point)

d) You can adjust the zero and the measuring range. (1 point)

e) The desired accuracy and the severity of operating conditions make frequent checks more necessary. (1 point)

TOTAL : 5 points

Groupement inter académique II	Session 2004	Code 3-0071		
Examen et spécialité BEP MAINTENANCE DES ÉQUIPEMENTS DE COMMANDE DES SYSTÈMES INDUSTRIELS				
Intitulé de l'épreuve Anglais				
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