



**Instructions 1011-S00 (En)**

Section	1011
Effective	August 2024
Replaces	August 2021

Original instructions

***Bellows monitoring system  
(BMS)  
for C - SL - FLO series pumps***



This MOUVEX Instructions provides assistance for installation but it is not, in any circumstances, intended to replace the specific Instructions of the relevant equipment suppliers. Those Instructions must be read before fitting the equipment.



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Your distributor :

# 1. WORKING PRINCIPLE

During transmission mounting, space between bellows walls is filled with pressurized argon gas. A pressure switch is connected with space between bellows walls and the whole capacity is sealed. This operation is conducted in the factory and any intervention leads to seals breakage and warranty loss.

Any hole or crack of one of the bellows walls leads to gas pressure drop which is detected by the switch.

This system is able to detect very small leakages and invisibles with naked eye.

The system switch allows driving for instance :

- A light alarm
- A sound alarm
- A motor stop by relay

# 2. CONNECTION



Improper wiring or voltage excess may lead to :

- inflammation risks,
- monitoring loss,
- switch damaging.

## 2.1 Non ATEX pressure switch

Switch setting is done in factory. User must not attempt modifying setting as it could make monitoring system ineffective.

### Electrical connection :

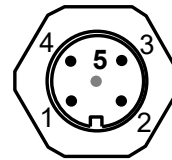
Installer must respect drawing prescriptions. Comply with the connection of the cable or connectors and the voltage values and load resistance.

When setting up the cable, you must comply with the following points :

- Do not leave surplus cable rolled up as this increases the inductance of the connection. Make a 10 cm quadrant to avoid run-off towards the pressure switch.
- Do not expose the pressure switch to humidity without its connector.

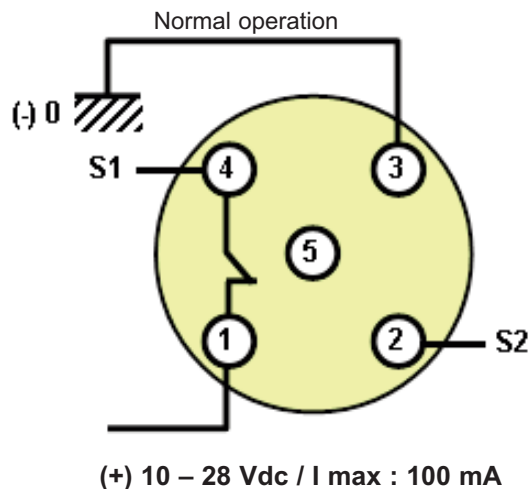
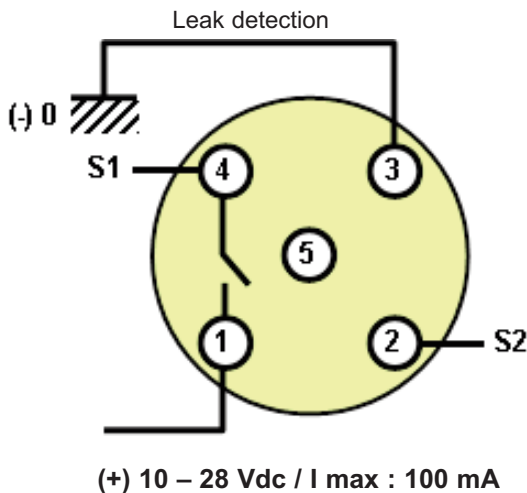
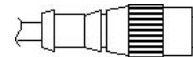
### Connection with mobile plug :

- Pin 1 : . . . . . + Supply
- Pin 2 : . . . . . Threshold 2 (not used)
- Pin 3 : . . . . . - Supply - Earth/ground
- Pin 4 : . . . . . Threshold 1
- Pin 5 : . . . . . Not used



### Standard molded cable M12 4 pins

- + Supply : . . . . . Brown
- Threshold 2 : . . . . . White (not used)
- - Supply : . . . . . Blue
- Threshold 1 : . . . . . Black

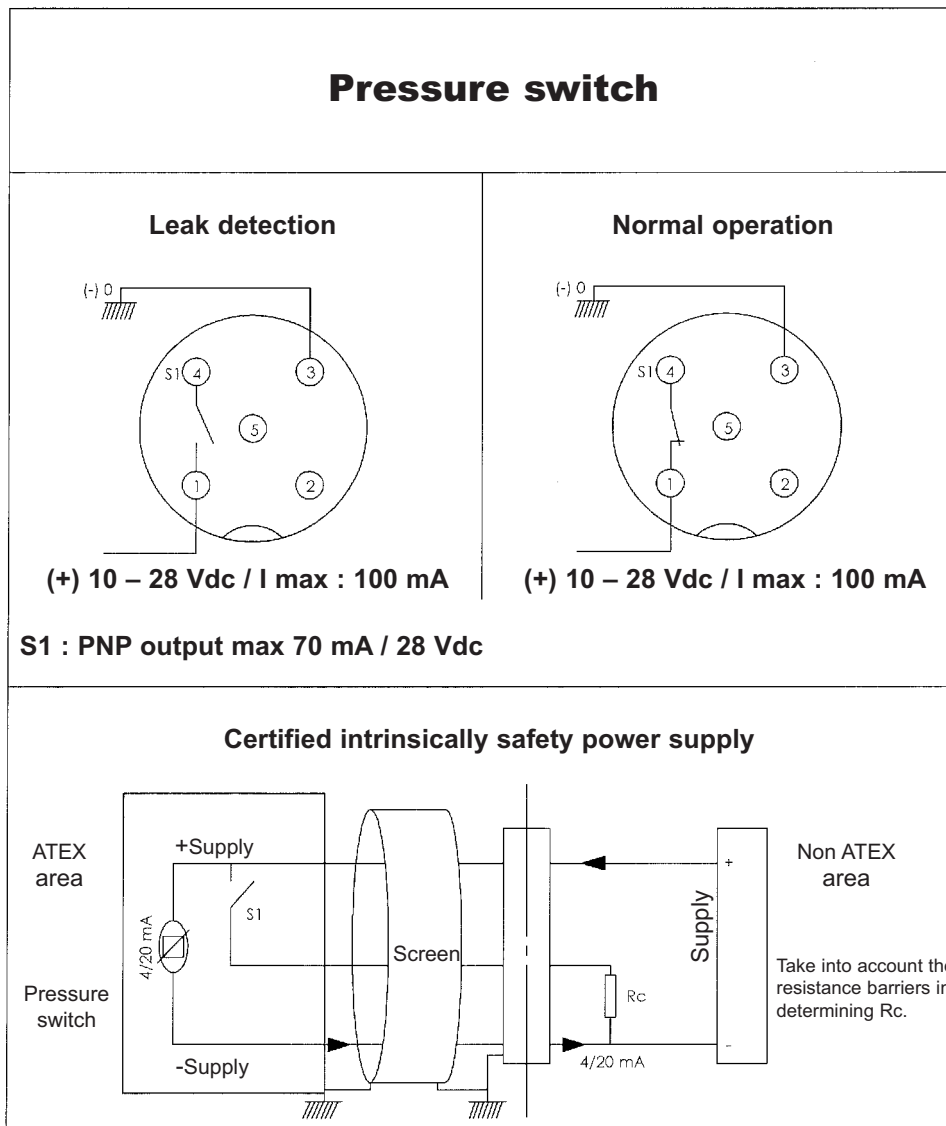


S1 : PNP output max 70 mA / 28 Vdc  
S2 : Do not use

## 2. CONNECTION (continued)

### 2.2 ATEX pressure switch

Switch setting is done in factory and keys are locked.  
**User must not attempt modifying setting as it could make monitoring system ineffective.**



## 2. CONNECTION (continued)

### Electrical connection :

Installer must respect drawing prescriptions. Comply with the connection of the cable or connectors and the voltage values and load resistance.

When setting up the cable, you must comply with the following points :

- Use a shielded cable and connect the shield to the 2 ends of the earth.
- Do not leave surplus cable rolled up as this increases the inductance of the connection. Make a 10 cm quadrant to avoid run-off towards the pressure switch.
- Do not expose the pressure switch to humidity without its connector.

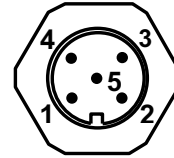
### Input connection - CN1 :

Detector connection



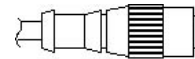
### Connection with mobile plug :

- Pin 1 : ..... + Supply
- Pin 2 : ..... Not used
- Pin 3 : ..... - Supply et earth/ground
- Pin 4 : ..... Threshold 1
- Pin 5 : ..... Not used



### Standard molded cable M12 5 pins :

- + Supply : ..... Brown
- Not used : ..... White
- - Supply+earth/ground : ... Blue
- Threshold 1 : ..... Black
- Not used /screen : ..... Grey



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## 3. SWITCHING

### 3.1 Possible causes

BMS switching means that bellows tightness is no longer guaranteed. Switching can be due to various types of incidents which do not necessarily lead to pumped product or transmission oil leakages outside the pump.

Leakage on the outer and/or inner bellows wall can be due to (non exhaustive list) :

- Over torque on transmission resulting from :
  - Differential pressure exceeding pump limit
  - Pump blockage by pumped fluid solidification or foreign body absorption
  - Improper disc nut unscrewing (see pump Instructions)
- Chemical attack by pumped or cleaning fluid.
- Over pressure on suction side (Maximum suction pressure: 3 bar / 43,5 psi).
- Fluid solidification on bellows surface.
- Water hammer during pump cleaning.
- Foreign body accidentally entering the pump.

### 3.2 What to do

**REMINDER** : When BMS switches, bellows may no longer be tight. Potential risks are :

- Crack on bellows external wall which is in contact with pumped fluid.
- Cracks or rupture of the bellows walls with transmission oil penetration in pumped fluid or pumped fluid leak outside the pump.

Stop the pump **depending on potential risk**, which depends on application.

Proceed or ask MOUVEX or its nearest MOUVEX service center to proceed to following steps :

- Rinse and clean the pump before disassembly.
- Remove transmission (see pump Instructions).
- Do an external visual control of the bellows. If there are no visible damages, there are no risks of pumped fluid pollution by transmission oil. **However, BMS is capable to detect very thin leakages, invisible to the naked eye. Bellows with no visible damage may still have a leakage** but it will only affect one of the walls.

Once possible, send back the transmission block or nearest MOUVEX service center for detailed examination.

**User must never :**

- **Modify pressure switch setting.**
- **Remove pressure switch.**
- **Open gas filling valve.**
- **Fill space between bellows walls with any type of gas including argon.**
- **Remove bellows or any other component of transmission block.**

Control, bellows replacement and gas filling operations require specific tooling and procedure and can only be done by MOUVEX or a certified service center.