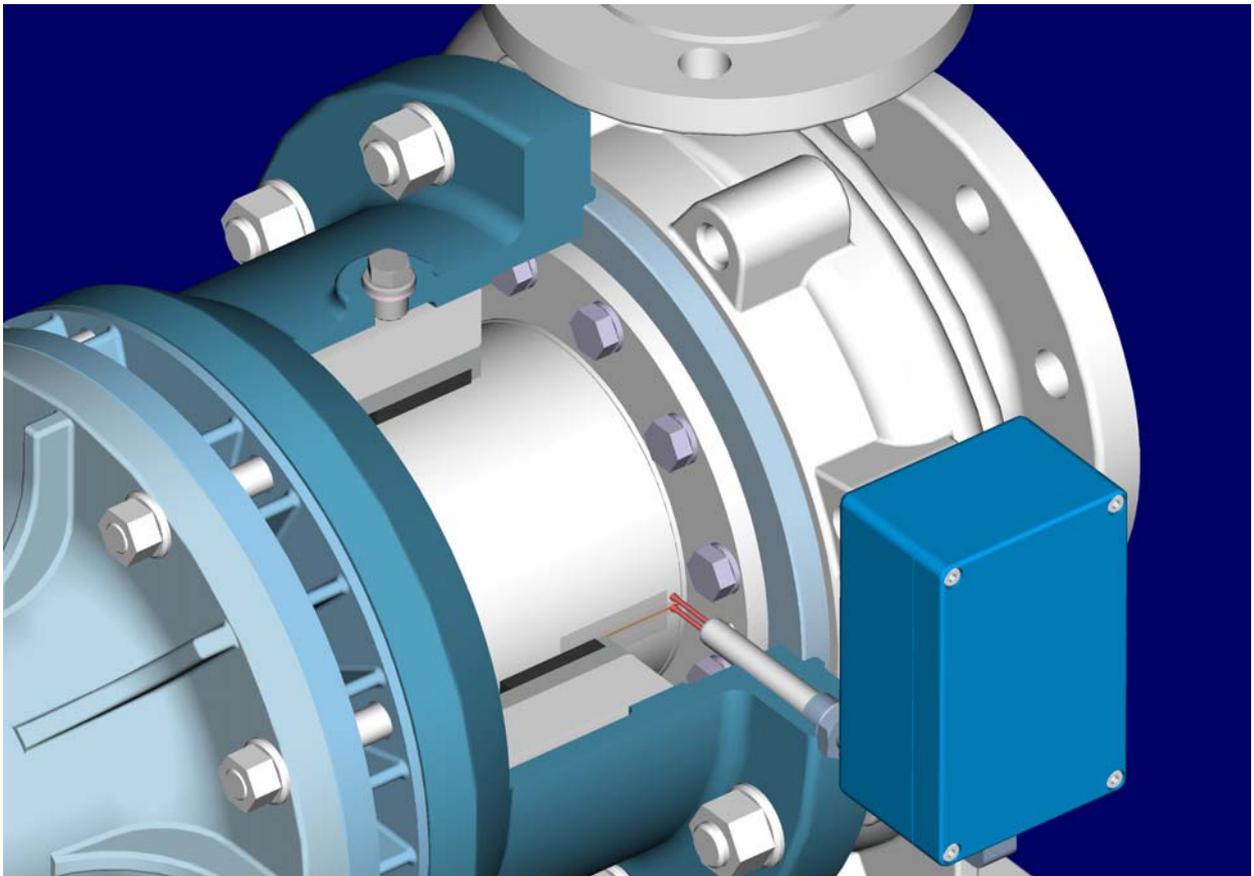




## TempProtectionSystem

### TPS



07/2003

## 1. Range of Application

The temperature-monitoring unit TempProtectionSystem (TPS) measures the temperature at the isolation shell of magnet-drive pumps. The measuring point is located directly in the magnetic field of the magnet drive to ensure immediate and exact measuring of the temperature. Therefore, the temperature-monitoring unit is particularly suitable for the use of magnet-drive pumps operating in areas subject to explosion hazards according to explosion-protection directive 94/9/EC.

## 2. Description of Function

Basically, the temperature-monitoring unit consists of a measuring point at the isolation shell and a monitoring device, which is fixed to the flange of the intermediate lantern (fig. 1). The measuring point is designed as thermocouple. The electronic processing unit of the monitoring device converts the signal of the thermocouple into a temperature-proportional current signal (4-20 mA) (fig. 2). The measurable temperature range extends from  $-50^{\circ}\text{C}$  (4 mA) up to  $250^{\circ}\text{C}$  (20 mA). Direct voltage is required as supply voltage.

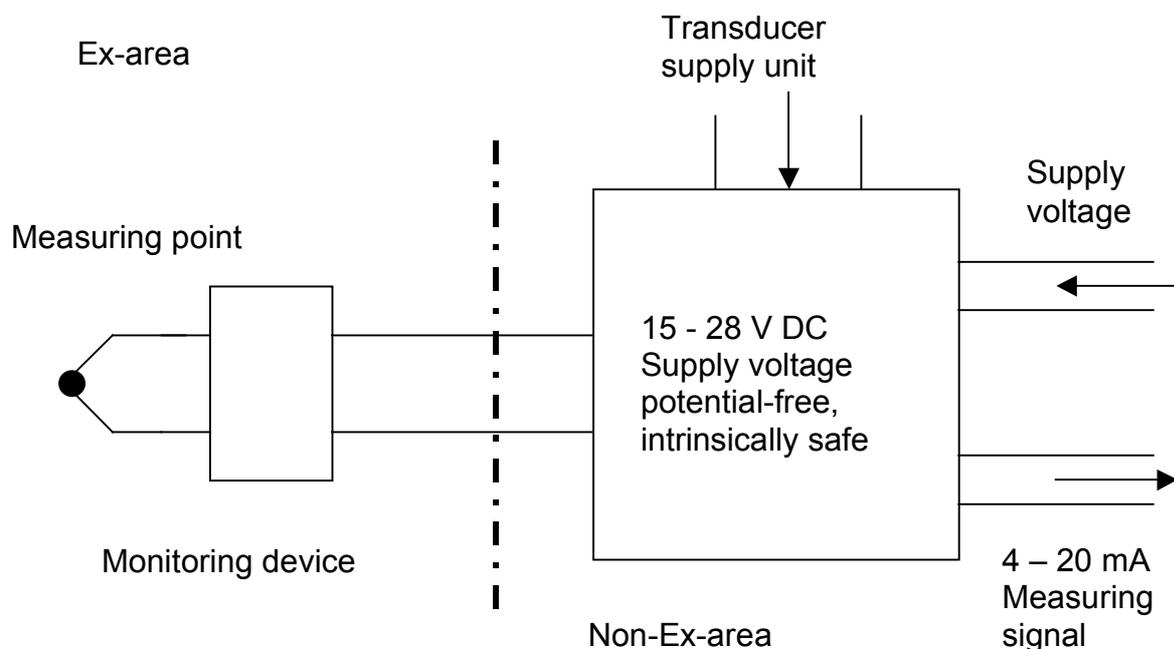


Figure 1

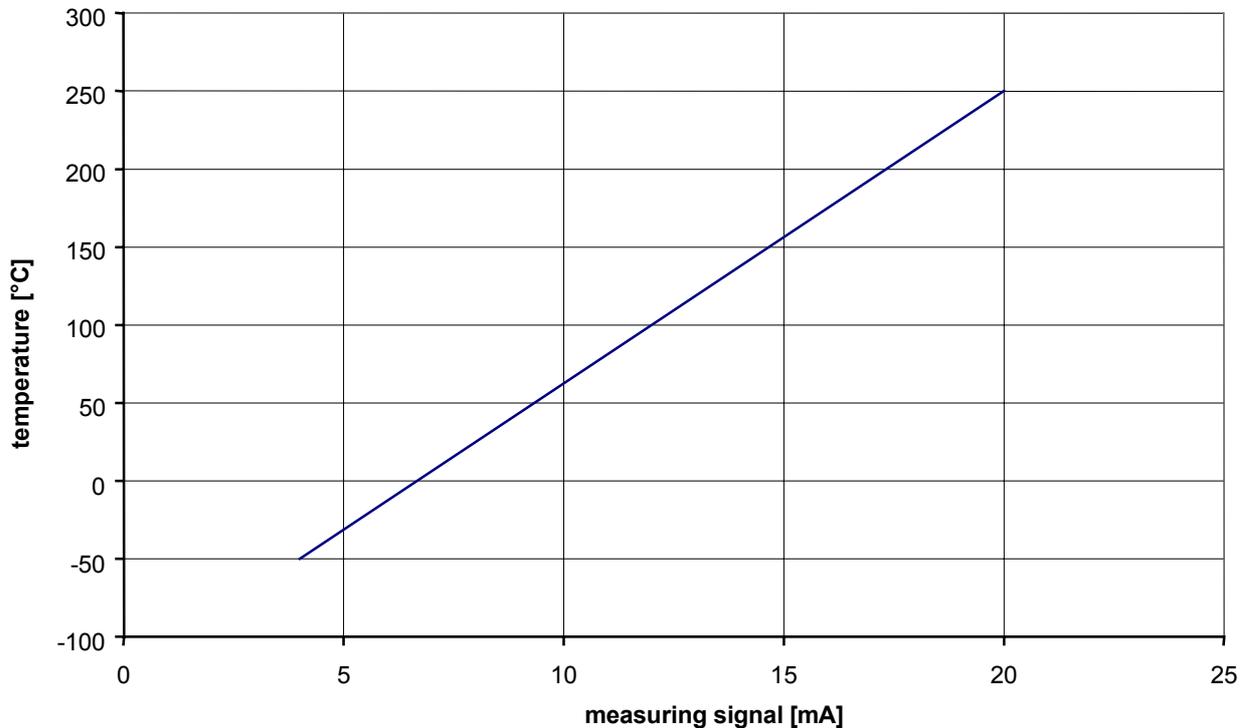


Figure 2: Temperature-proportional measuring signal

In case of damage to the sensor at the isolation shell, the transducer emits a measuring signal exceeding 20 mA. Thus, an open phase can be detected immediately.

The measuring point at the isolation shell is intrinsically safe, since a thermocouple is an active component and thus no supply voltage is required. The monitoring device and the transducer supply unit are certified to explosion-protection directive 94/9/EC.

### **3. Construction**

The electronic processing unit of the monitoring device is accommodated in a housing of protection type IP66 according to DIN 60529. The housing forms a unit with the temperature sensor and is screwed into a 1/4"-connection at the flange of the intermediate lantern on the casing side.

#### **4. Specifications**

Monitoring device:

Supply voltage:	15 - 28 V DC, potential-free, intrinsically safe
Allowable ambient temperature:	-40 - +70°C
Temperature measuring range:	-50 - +250°C
Exit:	4 - 20 mA. ±0.5 mA
Burden:	< = 100 ohms
Sensor break (open measuring point):	approx. I = 22 mA
Thermoelectric e.m.f.:	approx. 22,9 microV/K
Certificate of conformity:	PTB 00 ATEX 2212 X

Safety-relevant limiting values  
for the exit of the supply unit:

U<sub>i</sub> = DC 28 V  
I<sub>i</sub> = 93 mA  
P<sub>i</sub> = 660 mW

Transducer supply unit:

E.g. Pepperl & Fuchs KFD2-CR-EX1.30300  
(not included in scope of supply)