

## WORKSHOP 3: Standardization and Product Data Sheets

# Do we need regulations for Product data Sheets of Geotechnical Instrumentation?

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A B C D E F G

Sensor Type	Type	Standard Range	Range	Range	Type of sensor	Type of sensor
Resolution	Range	Over Range	Linearity	Accuracy : +/- % F.S.	Measuring Range	Range
Accuracy : +/- % F.S.	Accuracy +/- % F.S.	Resolution	Accuracy : +/- % F.S.	Resolution (with read out)	Overload	Over range
Maximum Pressure (x Rated Range)	Temperature Limit - Operational - Compensated	Accuracy : +/- % F.S.	Linearity	Thermal drift (in lab condition)	Sensitivity	Resolution
Temperature Coefficient	Coil Resistance	Linearity	Resolution (1)	Thermistance	Accuracy : +/- % F.S. (with explanatory note)	Accuracy : +/- % F.S.
Filter	Over Range Limit	Temperature Range	Over Range	Housing	Thermic Zero Shift	Operating Temperature
Materials	over range effect	Thermal Zero Shift	Diaphragm Displacement	Diameter	Thermic Sensitivity Shift	Diaphragm displacement
Size	Dead Band	Diaphragm Displacement	Diameter	Length	Electric Supply	Thermal zero drift
Weight	Vibration Effect	Length and Diameter	Weight	Material	Output signal	Materials
	Thermistore	Mass	Temperature range	Filter	Electric insulation	Filter
	Enclosure		Excitation Method		Temperature operating Range	
					Material	
					Diameter	
					Length	
					Weight	
					Filter	

Which one?

What can I expect?

# The Situation

## ✓ Data Sheets (Product Data Sheets):

- content is not always clear and easy to understand;

**Regulation is needed**

- terminology is not unique;
- technical and commercial aspects are mixed;
- not easy to compare specifications.

Two key points:

- Specifications
- Terminology

## **SPECIFICATIONS:**

**Define a “*minimum common content*”:**

✓ **Metrology**

✓ **Electrical / Mechanical**

✓ **Environmental**

✓ **General / Application**

**Metrology:** Measurement Principle

**Range**

**Over Range**

**Accuracy Class**

**Dead Band**

**Stability**

***Repeatability***

***Resolution***

***Hysteresis***

***SENSOR OR INSTRUMENT? LAB OR FIELD?***

## Problem:

- **Which Standard?**

(ISO – BS – ASTM – DIN – AFNOR, ??)

- **Few internationally recognized references**

## Write specific references / guidelines

(Some industrial categories of producers have done it)

## Electrical / Mechanical:

**Power Supply**

**Output**

**Scale of Displaying**

**Mounting / Connecting Elements**

***Overvoltage protection***

***Grounding Connection***

***Warm-up time***

***Wiring***

## **Environmental:**

**Temperature Range**

**Temperature Drift**

**Waterproofing**

**Chemical Aggression**

**Hazards (ATEX)**

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## General /Application:

**Suggested Field of application**

**Special features**

**Experiences**

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### ***Classification***

***(based on Long Term Stability and Serviceability)***

***Class 1: stable and low prob of failure***

***Class 2: stable but not low prob of failure***

***Class 3: no long term stability but low prob of failure***

***Class 4: no long term stability no low prob of failure***

## **TERMINOLOGY:**

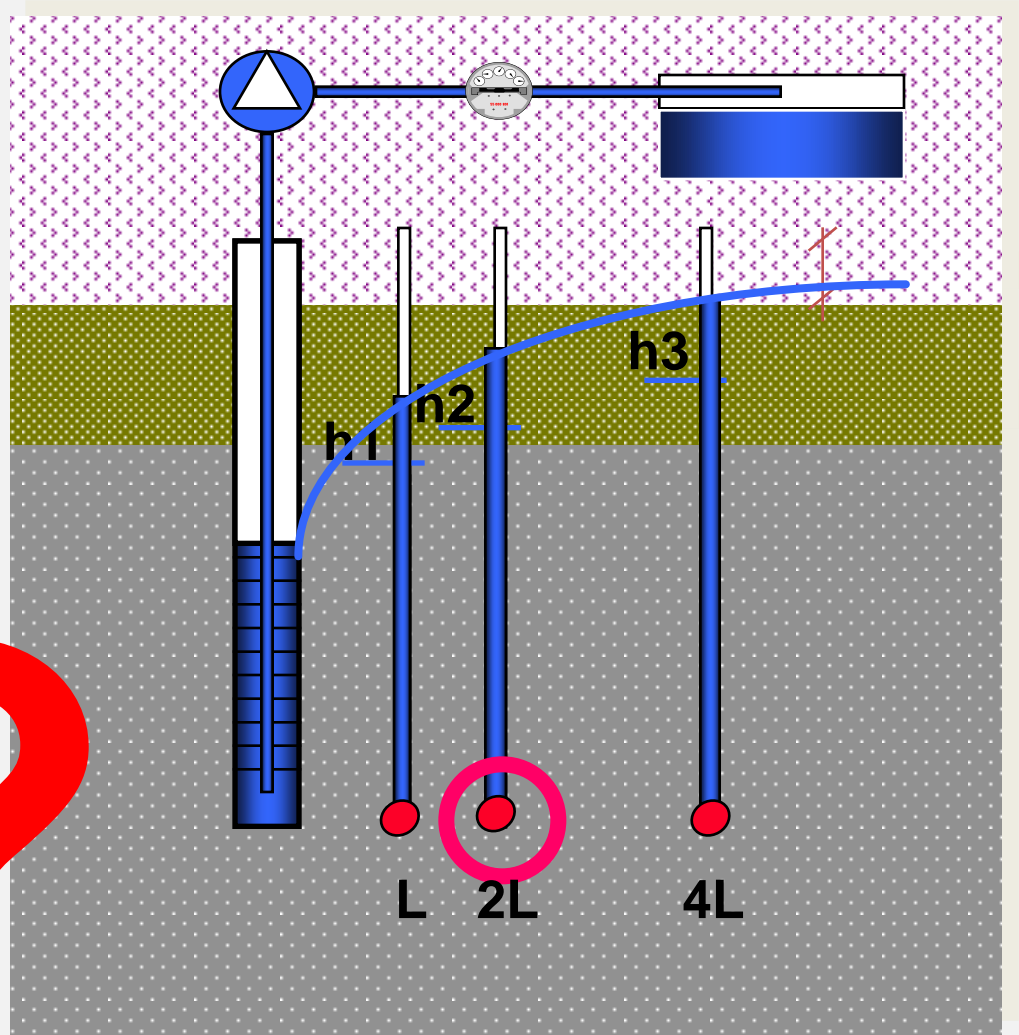
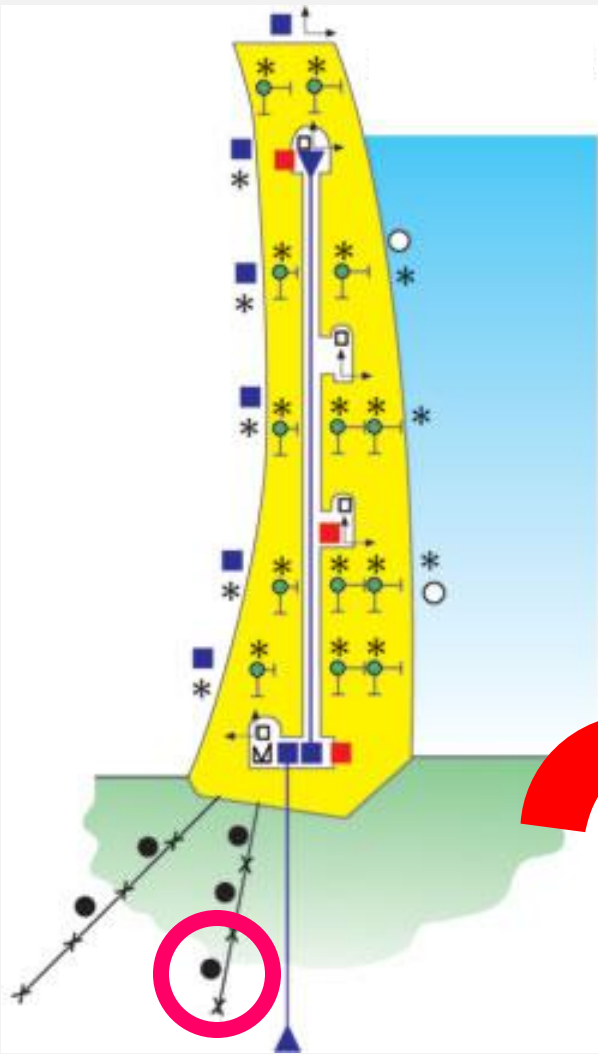
**Use recognized international Standards**

- V.I.M. (International Vocabulary of Metrology)**
- ANSI/ISA-S51.1 (Process Instrumentation Terminology)**

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**PROBLEM OF DIFFERENT LANGUAGES AND CULTURES  
AND LOCAL STANDARDS / GUIDELINES / CODES**



A B C D E F G

Sensor Type  
 Resolution  
 Accuracy : +/- % F.S.  
 Maximum Pressure (x Rated Range)  
 Temperature Coefficient  
 Filter  
 Materials  
 Size  
 Weight

Type  
 Range  
 Accuracy : +/- % F.S.  
 Temperature Limit - Operational - Compensated  
 Coil Resistance  
 Over Range Limit  
 over range effect  
 Dead Band  
 Vibration Effect  
 Thermistore  
 Enclosure

Standard Range  
 Over Range  
 Resolution  
 Accuracy : +/- % F.S.  
 Linearity  
 Temperature Range  
 Thermal Zero Shift  
 Diaphragm Displacement  
 Length and Diameter  
 Mass

Range  
 Material  
 Accuracy : +/- % F.S.  
 Linearity  
 Resolution (1)  
 Over Range  
 Diaphragm Displacement  
 Diameter  
 Weight  
 Temperature range  
 Excitation Method

Range  
 Accuracy : +/- % F.S.  
 Resolution (with read out)  
 Thermal drift (in lab condition)  
 Thermistance  
 Housing  
 Diameter  
 Length  
 Material  
 Filter

Type of sensor  
 Measuring Range  
 Overload  
 Sensitivity  
 Accuracy : +/- % F.S. (with explanatory note)  
 Thermic Zero Shift  
 Thermic Sensitivity Shift  
 Electric Supply  
 Output signal  
 Electric insulation  
 Temperature operating Range  
 Material  
 Diameter  
 Length  
 Weight  
 Filter

Type of sensor  
 Range  
 Over range  
 Resolution  
 Accuracy : +/- % F.S.  
 Operating Temperature  
 Diaphragm displacement  
 Thermal zero drift  
 Materials  
 Filter

Which one?

What can I expect?

# The Solution

- Introduce “Regulation”
- Introduce Guidelines
- Define reference Standards
- Consider Local Regulations and Codes
- Convince the Manufacturers

**REGULATION**



**CLEAR UNDERSTANDING**



**CORRECT SELECTION**



**GOOD RESULTS**