# IEC 62828-2

Edition 1.0 2017-11

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

colour inside

**Reference conditions and procedures for testing industrial and process measurement transmitters –
Part 2: Specific procedures for pressure transmitters**



**Conditions de référence et procédures pour l'essai des transmetteurs de mesure industrielle et de processus –
Partie 2: Procédures spécifiques pour les transmetteurs de pression**

IEC 62828-2:2017-11(en-fr)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

**About the IEC**
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

**About IEC publications**
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

**IEC Catalogue - webstore.iec.ch/catalogue**
The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

**IEC publications search - www.iec.ch/searchpub**
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, replaced and withdrawn publications.

**IEC Just Published - webstore.iec.ch/justpublished**
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

**Electropedia - www.electropedia.org**
The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

**IEC Glossary - std.iec.ch/glossary**
65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

**IEC Customer Service Centre - webstore.iec.ch/csc**
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.



---

**A propos de l'IEC**
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

**A propos des publications IEC**
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l’édition la plus récente, un corrigendum ou amendement peut avoir été publié.

**Catalogue IEC - webstore.iec.ch/catalogue**
Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

**Recherche de publications IEC - www.iec.ch/searchpub**
La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d’études,…). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

**IEC Just Published - webstore.iec.ch/justpublished**
Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

**Electropedia - www.electropedia.org**
Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

**Glossaire IEC - std.iec.ch/glossary**
65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

**Service Clients - webstore.iec.ch/csc**
Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

IEC 62828-2

Edition 1.0 2017-11

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

colour inside



## Reference conditions and procedures for testing industrial and process measurement transmitters –
## Part 2: Specific procedures for pressure transmitters

## Conditions de référence et procédures pour l'essai des transmetteurs de mesure industrielle et de processus –
## Partie 2: Procédures spécifiques pour les transmetteurs de pression

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 17.100; 25.040.40

ISBN 978-2-8322-4850-8

**Warning! Make sure that you obtained this publication from an authorized distributor.**
**Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

___________

# REFERENCE CONDITIONS AND PROCEDURES FOR TESTING INDUSTRIAL AND PROCESS MEASUREMENT TRANSMITTERS –

## Part 2: Specific procedures for pressure transmitters

## FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.



International Standard IEC 62828-2 has been prepared by subcommittee 65B: Measurement and control devices, of IEC technical committee 65: Industrial-process measurement, control and automation.

The text of this International Standard is based on the following documents:

| FDIS | Report on voting |
|---|---|
| 65B/1098/FDIS | 65B/1101/RVD |

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This International Standard is to be used in conjunction with IEC 62828-1:2017.

A list of all parts in the IEC 62828 series, published under the general title *Reference conditions and procedures for testing industrial and process measurement transmitters*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

**IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

# INTRODUCTION

Most of the current IEC standards on industrial and process measurement transmitters are rather old and were developed having in mind devices based on analogue technologies. Today's digital industrial and process measurement transmitters are quite different from those analogue transmitters: they include more functions and newer interfaces, both towards the computing section (mostly digital electronic) and towards the measuring section (mostly mechanical). Even if some standards dealing with digital process measurement transmitters already exist, they are not sufficient, since some aspects of the performance are not covered by appropriate test methods.

In addition, existing IEC test standards for industrial and process measurement transmitters are spread over many documents, so that for manufacturers and users it is difficult, impractical and time-consuming to identify and select all the standards to be applied to a device measuring a specific process quantity (pressure, temperature, flow, level, etc.).

To help manufacturers and users, it was decided to review, complete and reorganize the relevant IEC standards and to create a more suitable, effective and comprehensive standard series that provides in a systematic way all the necessary specifications and tests required for different industrial and process measurement transmitters.

To solve the issues mentioned above and to provide an added value for the stakeholders, the new standard series on industrial and process measurement transmitters covers the following main aspects:

- applicable normative references;
- specific terms and definitions;
- typical configurations and architectures for the various types of industrial and process measurement transmitters;
- hardware and software aspects;
- interfaces (to the process, to the operator, to the other measurement and control devices);
- physical, mechanical and electrical requirements and relevant tests; clear definition of the test categories: type tests, acceptance tests and routine tests;
- performance (its specification, tests and verification);
- environmental protection, hazardous areas application, functional safety, etc.;
- structure of the technical documentation.



To cover in a systematic way all the topics to be addressed, the standard series is organized in several parts. At the moment of the publication of this document, the IEC 62828 series consists of the following parts:

- IEC 62828-1: General procedures for all types of transmitters
- IEC 62828-2: Specific procedures for pressure transmitters
- IEC 62828-3: Specific procedures for temperature transmitters
- IEC 62828-4: Specific procedures for level transmitters
- IEC 62828-5: Specific procedures for flow transmitters

In preparing IEC 62828 (all parts), many test procedures were taken, with the necessary improvements, from IEC 61298 (all parts). As IEC 61298 (all parts) is currently applicable to all process measurement and control devices, when IEC 62828 (all parts) is completed, IEC 61298 (all parts) will be revised to harmonise it with IEC 62828 (all parts), taking out from its scope the industrial and process measurement transmitters. During the time when the scope of IEC 61298 (all parts) is being updated, the new IEC 62828 series takes precedence for industrial and process measurement transmitters.

# REFERENCE CONDITIONS AND PROCEDURES FOR TESTING INDUSTRIAL AND PROCESS MEASUREMENT TRANSMITTERS –

## Part 2: Specific procedures for pressure transmitters

## 1 Scope

This part of IEC 62828 establishes specific procedures for testing pressure process measurement transmitters (PMT) used in measuring and control systems for industrial processes and for machinery control systems.

A pressure PMT can feature a remote seal to bring the process variable to the sensing element in the PMT. When the remote seal cannot be separated from the PMT, the complete device is tested.

For general test procedures, reference is made to IEC 62828-1, which is applicable to all types of process measurement transmitters.

NOTE In industrial and process applications, to indicate the process measurement transmitters, it is common also to use the terms "industrial transmitters", or "process transmitters".

## 2 Normative references



The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.



IEC 62828-1, *Reference conditions and procedures for testing industrial and process measurement transmitters – Part 1: General procedures for all types of transmitters*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62828-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

### 3.1 General

**3.1.1**
**absolute pressure**
$p_{abs}$
pressure using absolute vacuum as the datum point

Note 1 to entry: The CDD code of this entry for Electronic Data Exchange is ABB181.

**3.1.2**
**ambient atmospheric pressure**
$p_{amb}$
pressure exerted by the atmospheric air at a given altitude and temperature

Note 1 to entry: The atmospheric pressure decreases with the altitude by about 10 Pa/m (Pascal per metre).

**3.1.3**
**differential pressure**
$\Delta p$
$p_{1,2}$
difference between the two (absolute) pressures that act simultaneously on opposite sides of a membrane or a primary element

Note 1 to entry: The CDD code of this entry for Electronic Data Exchange is ABB995.

**3.1.4**
**gauge pressure**
$p_{\mathrm{g}}$
pressure using atmospheric pressure as the datum point

$$p_{\mathrm{g}} = p_{\mathrm{abs}} - p_{\mathrm{amb}}$$

Note 1 to entry: Gauge pressure assumes positive values when the absolute pressure is greater than the ambient atmospheric pressure; it assumes negative values when the absolute pressure is less than the ambient atmospheric pressure.

Note 2 to entry: In certain industrial environments, "gauge pressure" may be referred to as "pressure".

Note 3 to entry: The term "relative pressure" to indicate gauge pressure is obsolete and conceptually wrong, so it should be avoided.

Note 4 to entry:Tthe CDD code of this entry for Electronic Data Exchange is ABB182.

**3.1.5**
**line pressure**
**static pressure**
pressure applied on both sides of a differential pressure PMT



Note 1 to entry: For differential pressure PMTs, it is an influence factor that is bilateral and does not represent the measurand.



**3.1.6**
**leakage rate**
leakage, permeation and/or diffusion effects of the medium through the PMT and/or its mounting devices over the testing period under static pressure conditions, expressed as normal volume flow rate

Note 1 to entry: The CDD code of this entry for Electronic Data Exchange is ABD632.

**3.1.7**
**measuring range**
<for pressure PMTs> range related to the measurement of absolute and gauge pressure PMTs

Note 1 to entry: For a pressure PMT with variable (adjustable or programmable) span, the measuring range and associated terms are shown in Figure 2.

Note 2 to entry: See also Annex C for an example of signal current range of a 4 mA to 20 mA PMT.

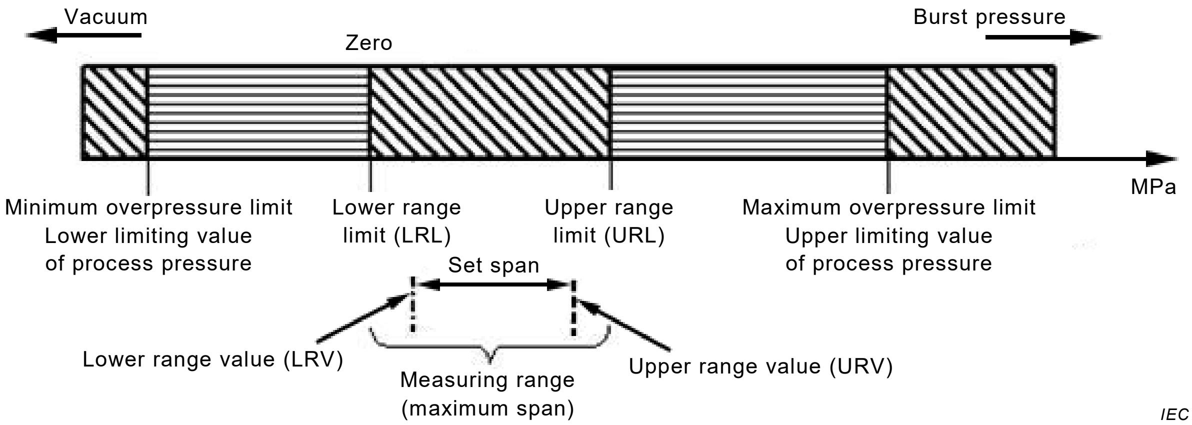



**Figure 1 – Measuring range and associated properties of a pressure PMT**

**3.1.8**
**overpressure limit**
**proof pressure**
multiple of indicated range with which the device may be subjected to pressure without permanent damage

Note 1 to entry: The output signal at the overpressure limit is sometimes unreliable and/or not predictable. The specification applies to the maximum permitted medium temperature.

Note 2 to entry: After returning to the measuring range, the guaranteed metrological properties shall remain unchanged.

Note 3 to entry: The CDD code of this entry for Electronic Data Exchange is ABC027.

**3.1.9**
**pressure**
force per unit area applied in a direction perpendicular to a surface

Note 1 to entry: The SI unit for pressure is the Pascal (Pa), equal to one Newton per square metre ($N/m^2$ or $kg \cdot m^{-1} \cdot s^{-2}$).

Note 2 to entry: In Annex A, a table shows the relationship between the SI unit and other units, often used for process measurement transmitter applications.

Note 3 to entry: For the purpose of this document, a simplified definition could be accepted as follows: "Ratio of orthogonal component of the force per unit area to that unit area".

**3.1.10**
**variable scale pressure transmitter**
pressure transmitter with an adjustable measuring range (turn-down ratio)

### 3.2 Terms related the process conditions



**3.2.1**
**diaphragm seal**
**remote seal**
functional component that transfers the pressure to be measured to the PMT by hydraulic path and decouples the PMT from influence factors stemming from the process



Note 1 to entry: A remote seal is connected to the transmitter by a capillary; the diaphragm seal is usually an integral part of the transmitter.

Note 2 to entry: The primary purpose of using diaphragm/remote seals is to protect the sensing element against high process temperatures or aggressive media.

Note 3 to entry: A diaphragm made of suitable material is responsible for the separation of the measured fluids/gases and transmitter. A fluid adapted to the measurement task is responsible for the transfer of the pressure to the measuring element.

Note 4 to entry: The diaphragm seal is included in the treatment of the total measurement error (e.g. temperature influence, step response time, vacuum stability, etc.).

**3.2.2**
**manifold**
pipe fitting or similar device, such as a flanged joint, that connects multiple inputs or outputs, allowing differential pressure PMTs to connect to the process

## 4 General description of the device and overview

The general description outlined in Clause 4 of IEC 62828-1:2017 is applicable.

For the scope of this document, see a more detailed description of the functional blocks of an intelligent pressure PMT in Annex B.

## 5 Reference test conditions

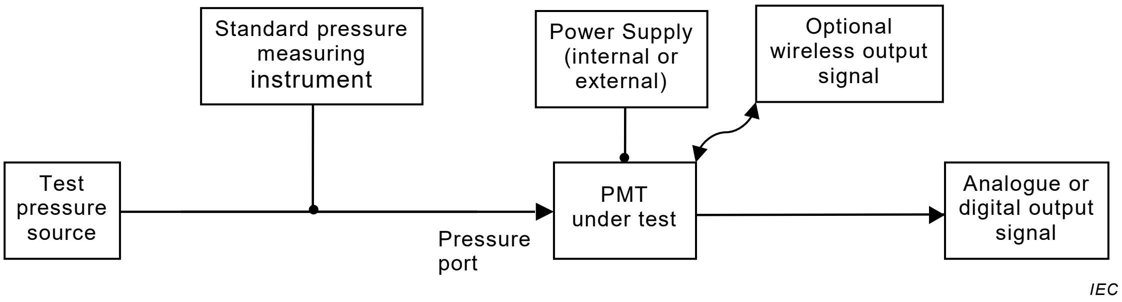
To verify the influence of external quantities on accuracy as well as the mechanical and electrical conditions which a device can withstand and still work within specification, Clause 5 of IEC 62828-1:2017 applies, both for standard reference test conditions and for operating reference test conditions.

# 6 Test procedures

## 6.1 General

Clause 6 of IEC 62828-1:2017 shall apply, with the following additional specifications.

An example of schematic test set-up with an optional HART®[1] digital output is shown in Figure 3.




The test pressure source and the standard pressure measuring instrument could be the same, as for example for the application of pressure calibrators or pressure balances, namely also dead weight calibrators.

Usually the power supply is necessary except for wireless PMTs working with internal battery.

The optional digital output signal is provided for smart and Intelligent PMTs and is detected by handheld or PC communicator.

Usually for differential pressure PMTs the pressure is generated in the high pressure port with the low pressure port open to the atmospheric pressure.

Analogue and digital output signals are mutually exclusive, unless HART® is in use.



**Figure 2 – Schematic example of a test set-up for pressure PMT**

## 6.2 Tests at standard and operating reference test conditions

### 6.2.1 General



For the majority of the tests, 6.2.1 of IEC 62828-1:2017 applies. In particular see

- Annex B in IEC 62828-1:2017 for the summary of the tests at the standard reference conditions, and
- Annex C in IEC 62828-1:2017 for the summary of the tests at the operating reference conditions.

In addition, the specific tests in 6.2.1 to 6.2.7 apply to pressure PMTs.

### 6.2.2 Accuracy test suitable for routine and acceptance tests

#### 6.2.2.1 General

The input-output characteristic under reference conditions shall be measured in one measurement cycle, traversing the full range in each direction. For this, at least five points of measurement should be evenly distributed over the range; they should include points at or near (within 10 % of span) the 0 % and 100 % values of the span.

NOTE For instruments with a non-linear input-output relationship (e.g. square law), the test points are chosen so as to obtain output values equally distributed over the output span.

#### 6.2.2.2 Measurement procedure

Initially, an input signal equal to the lower range value is generated and the value of the corresponding input and output signal is recorded. Then the input signal is slowly (the rate of change depending from the DUT) increased to reach without overshoot the first test point. After a sufficient stabilization period (e.g. reaching a steady state), the value of the corresponding input and output signal is recorded.

1 HART® is the trade name of a communication protocol specified by FieldComm Group. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

The operation is repeated for all the predetermined values up to 100 % of the input span. After measurement at this point, the input signal is slowly decreased without overshoot to the test value directly below 100 % of input span and then to all other values in turn down to 0 % of input span, thus closing the measurement cycle.

#### 6.2.2.3 Elaboration data

The difference between the output signal values obtained at the test points for each upscale and downscale traverse and the corresponding ideal values are recorded and their algebraic differences are reported as measured errors. The errors shall generally be expressed as percent of the ideal output span. All the error values obtained shall be shown in a tabular form (see Table 1) and presented graphically (see Figure 6).

**Table 1 – Example of measured errors**

| Output (% of span) | 0 | 20 | 40 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|
| Measured error up | | 0,09 | −0,04 | −0,23 | −0,22 | 0,10 |
| Measured error down | −0,06 | 0,26 | 0,17 | −0,08 | −0,13 | |
| Maximum measured error | −0,06 | 0,26 | 0,17 | −0,23 | −0,22 | 0,10 |
| Hysteresis | | 0,17 | 0,21 | 0,15 | 0,09 | |

From Table 1, the maximum measured error found is 0,26 % and the maximum hysteresis is 0,21 %. The repeatability is the maximum deviation of the corresponding values of the up-and down cycle.



For differential pressure PMTs, the measurement cycle is done for the positive side as well as for the negative side of the pressure transmitter. For measurement of the negative side, the current output of transmitters with analog output 4 mA to 20 mA shall be configured to match this pressure range.



The data from Table 1 are plotted in Figure 4.

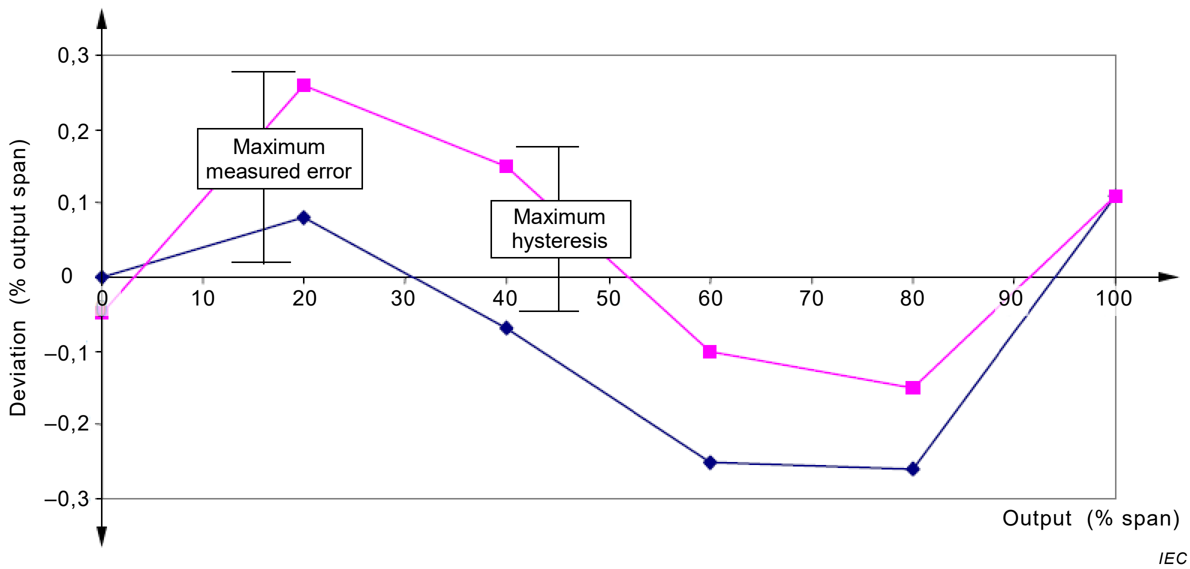



**Figure 3 – Example of measured error plot**

### 6.2.3 Overpressure

#### 6.2.3.1 General

For gauge pressure and absolute pressure PMTs, the test shall be carried out following the procedure described in 6.2.3.9 of IEC 62828-1:2017, i.e. by measuring any residual changes in lower range-value and span which result from overranging the input at a level between 150 % to 200 % of full scale, if not otherwise specified by the manufacturer.

For differential pressure PMTs, the additional tests in 6.2.4 shall be performed.

The results shall be reported according to Clause 7.

#### 6.2.3.2 Influence of bilateral overpressure for differential pressure PMT

The test shall be carried out following the procedure described in the 6.2.3.9 of IEC 62828-1:2017, i.e. by measuring any residual changes in lower range-value and span which result from overranging the input by 50 % at the minimum and maximum span settings, if not otherwise specified by the manufacturer, and applying the overpressure in turn on both the inputs of the pressure differential PMT ports.

Unless otherwise specified, as common practice, minimum overpressure conditions are as follows:

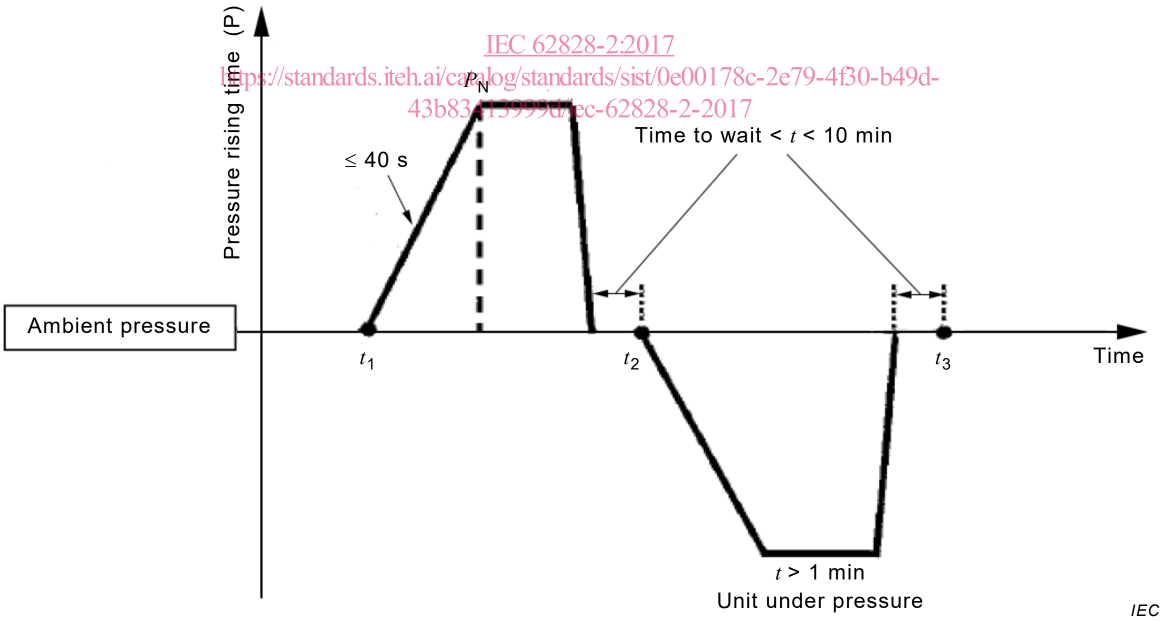
- pressure rising time: < 1 min;
- exposition time: minimum 5 min;
- remaining time: maximum 30 min;
- remaining zero-error within the reference accuracy.

Restrictions after returning from the overload range shall be specified in the documentation.

#### 6.2.3.3 Influence of alternating unilateral overpressure for differential pressure PMT

The test is performed applying successively the maximum positive and then the maximum negative allowed overpressure to one side of a differential pressure transmitter. The maximum deviation (in % of the span) between $t_1$ to $t_2$ or $t_2$ to $t_3$ of zero pressure reading after the test shall be recorded. Figure 5 gives additional information and with an example explains how to perform the test and calculate the error.






**Key**

$p_N$ maximum static pressure

$$F_w = \frac{\text{max.}\left|p_{ti} - p_{ti+1}\right|}{M_{span}} \text{ x } 100$$

where

$F_w$ is the measurement error with unilateral overpressure;

$M_{span}$ is the maximum span;

$p_{ti}$ is the pressure at time $t_i$;

$p_{ti+1}$ is the specification $p_n$ in bar/100.

**Figure 4 – Procedure for the determination of the unilateral overpressure error**

#### 6.2.3.4 Influence of alternating bilateral overpressure for differential pressure PMT

The test is performed by applying the maximum positive and then the maximum negative allowed overpressure successively to both sides of a differential pressure transmitter. The maximum deviation (in % of the span) between $t_1$ to $t_2$ or $t_2$ to $t_3$ of zero pressure reading after the test shall be recorded. Figure 5 gives additional information and with an example explains how to perform the test and calculate the error.

### 6.2.4 Influence of static pressure

#### 6.2.4.1 General

For differential pressure PMTs, the tests in 6.2.4.2 shall be performed. Results shall be reported according to Clause 7.

#### 6.2.4.2 Influence of static pressure on zero and span

This test is conducted to determine the effect on the output due to changes in process static pressure applied on both sides (bilateral application) of a differential pressure transmitter and to measure the influence on zero and on span per given pressure interval.

The static pressure error is the difference between the output at each static pressure and the output at atmospheric pressure.

The recommended test set-up is shown in Figure 6.

The input difference is set by adjustment of $V_2$ and $V_3$ to maintain a constant value as measured by the high pressure differential instrument, whilst the static pressure is varied by means of $V_1$.



During the test it is important to avoid the generation of false effects, for example differential pressures within the unit, which would invalidate the test results. Such differential pressures may be caused by quickly changing static pressure or by changes in ambient temperature (see Note 1).



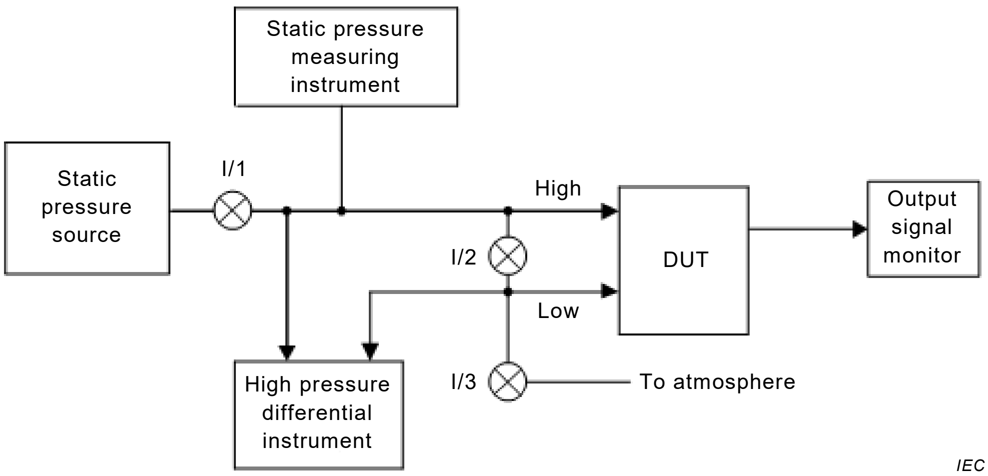



**Figure 5 – Schematic example of test set-up for determine the effect of the static pressure**

NOTE 1 Due attention is given to the effect of change in pressure in a closed system caused by changes in ambient temperature, and the difficulty of measuring the change of span at high static pressure.

NOTE 2 A standardized manifold (according IEC 61518) to connect the high and low ports of the PMT could be used.

The test is carried out at 10 % and 90 % of input by recording the changes in output at each 25 % increment of the static pressure between atmospheric pressure and the maximum working static pressure of the DUT.

NOTE 3 When is not possible to simulate the 10 and 90 % of input, the test is done with the same static pressure at both inputs, checking, for every increment of the static pressure the variations of the zero of the PMT.