 <b>Eskom</b>	<b>Work Instruction</b>	<b>Technology</b>
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Title: **WORK INSTRUCTION FOR  
CONTROL OF MONITORING  
AND MEASURING EQUIPMENT**

Unique Identifier: **240-95637584**

Alternative Reference Number: **<n/a>**

Area of Applicability: **Engineering**

Documentation Type: **Work Instruction**

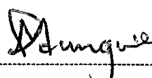
Revision: **1**

Total Pages: **7**

Next Review Date: **August 2018**

Disclosure Classification: **Controlled  
Disclosure**

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## 1. Introduction

Power Delivery Engineering makes use of a large variety of monitoring and measuring equipment which are used to provide accurate and reliable monitoring and measurement results required to perform engineering work. In order to achieve accurate readings from such monitoring and measuring equipment, it is essential that the equipment be calibrated on a regular basis. This procedure is to ensure that monitoring and measuring are done with calibrated equipment and that the equipment is fit for service.

## 2. Supporting Clauses

### 2.1 Scope

This document covers procedures to be followed, to ensure the regular calibration of monitoring and measuring equipment.

#### 2.1.1 Purpose

The purpose of this document is to provide a procedure to Power Delivery Engineering personnel to ensure that the equipment used for monitoring and measuring is calibrated and that the calibration is valid.

#### 2.1.2 Applicability

This procedure shall be applicable to all departments and disciplines within Power Delivery Engineering.

### 2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

#### 2.2.1 Normative

- [1] 240-53665024 Engineering Quality Manual
- [2] 240-76624513 Standard for the Calibration of Test Instruments used by Field Staff
- [3] ISO 9001 Quality Management Systems: Requirements
- [4] ISO 14001 Environmental Management Systems

#### 2.2.2 Informative

None

### 2.3 Definitions

#### 2.3.1 General

Definition	Description
<b>Appointed Responsible Person</b>	The individual appointed/ assigned by the PDE department Senior Manager to ensure monitoring and measuring equipment are maintained in good working order and calibrated as required

#### 2.3.2 Disclosure Classification

**Controlled disclosure:** controlled disclosure to external parties (either enforced by law, or discretionary).

## 2.4 Abbreviations

Abbreviation	Description
PDE	Power Delivery Engineering
SANAS	South African National Accreditation System
SHEQ	Safety, Health, Environmental and Quality

## 2.5 Roles and Responsibilities

- The **PDE Department Senior Manager** (or his delegate) is responsible for setting up an enabling contract with the respective Service Provider which will be performing calibration on PDE monitoring and measuring equipment.
- The Appointed Responsible Person shall identify equipment which requires calibration, and create the purchase request to draw off the enabling contract.
- The Appointed Responsible Person shall ensure proper packaging and despatch of the relevant monitoring and measuring equipment to the Service Provider, and for the receipt of such equipment.
- The Appointed Responsible Person is to ensure that a monitoring and measuring equipment register is maintained together with calibration certificates. Calibration records are maintained by each PDE department for the monitoring and measuring equipment under their responsibility.
- All PDE personnel who make use of monitoring and measuring equipment, are to ensure that such equipment are always well maintained, and are to comply with this procedure to ensure the equipment are calibrated timeously.

## 2.6 Process for monitoring

The Appointed Responsible Person is to ensure that the correct PDE Procurement Processes are followed, and that Service Providers comply with agreed-upon lead times as per the enabling contract. Compliance with this procedure shall be checked as part of the Quality Management System maintenance and during audits.

## 2.7 Related/Supporting Documents

Not applicable.

## 3. Calibration procedure

### 3.1 Equipment Calibration Status

- The calibration status of all monitoring and measuring equipment must be verified prior to use of such equipment.
- The calibration status of equipment can be verified by one of the following three systems:
  - Checking on the monitoring and measuring equipment for a calibration sticker, which should provide details of the company which last performed calibration, the serial number of the equipment, the date last calibrated, and the next calibration due date.
  - Checking on the most up to date calibration certificate associated with the applicable monitoring and measuring equipment.
  - Referring to the monitoring and measuring equipment register for such equipment, which should also contain all of the above details, and which should be made available.

- No monitoring and measuring equipment should be used for monitoring and measuring purposes, if the calibration status is unknown, or if the calibration has expired, as the accuracy of the monitoring and measuring results could be compromised if the equipment is not properly calibrated.

### **3.2 When should calibration be done**

Calibration shall be done in the following instances:

- When calibration details are not available, either in the form of a calibration sticker on the equipment, or a valid calibration certificate.
- When calibration is due. The frequency, at which equipment will be calibrated, will be in accordance with the manufacturer's specification. In the absence of this specification, calibration will be performed on an annual basis or as determined by the users [2]. These details must always remain up-to-date in the monitoring and measuring equipment register.
- Whenever repair has been carried out on the monitoring and measuring equipment.
- When the monitoring and measuring equipment has been exposed to extremes such as temperature extremes, overloading and so on. If the user becomes aware of the equipment having been exposed to such extremes, then the equipment should be checked by comparing monitoring and measuring results with another monitoring and measuring equipment of known calibration. Should it be determined that the monitoring and measuring equipment is out of calibration, then such equipment will not be further used for monitoring and measuring purposes, until it has been re-calibrated [2].
- At any time when the equipment does not produce accurate results. If unsure, this can often be verified by comparing monitoring and measuring results with another monitoring and measuring equipment of known calibration.

### **3.3 Process for calibration**

Once it has been verified that monitoring and measuring equipment is due for calibration, the following process must be followed, to have the equipment calibrated:

- Reference must be made to the enabling contract in place, in order for a purchase request to be created. The Service Provider must be SANAS accredited.
- Equipment is to be packaged for despatch by the Appointed Responsible Person or his/her delegate. Great care must be taken when packaging equipment – packaging must be of such a nature, so as to absorb high impact. The equipment is to be safely packaged, by using bubble-wrap, polystyrene or similar, so as to safeguard against physical damage and possible damage in transit. Any other special packaging and handling instructions must be identified.
- Equipment must then be couriered or transported directly from the office of the responsible PDE department to the relevant Service Provider.
- Unless otherwise stated on the contract, the lead time for calibration only, will be no more than 30 calendar days from the date received by the Service Provider to the date dispatched by them, and will not include courier delays. This lead time refers to calibration only and not fault repair, which will be quoted on separately.
- Upon completion of the calibration, the monitoring and measuring equipment will be returned directly to the responsible PDE department together with a calibration certificate from the Service Provider. The certificate shall bear the mark of a SANAS accredited calibration service provider.
- A report of calibration results shall be returned by the Service Provider indicating both pre and post calibration results.

### **3.4 Equipment for Calibration**

The monitoring and measuring equipment that requires regular calibration shall be identified for each PDE department. All such equipment shall appear on the PDE department's monitoring and measuring equipment register.

Monitoring and measuring equipment owned and used by individuals and/or contractors shall be calibrated as necessary. The Appointed Responsible Person shall verify the monitoring and measuring equipment calibration status before such equipment can be used for PDE work. Individuals and/or contractors shall be required to provide evidence of calibration for the monitoring and measuring equipment.

### **3.5 Calibration frequency**

The calibration frequency shall be as recommended by the equipment manufacturer or as determined by the user [2]. Details of calibration frequency shall be recorded on the monitoring and measuring equipment register.

### **3.6 Handling and storage**

It is the responsibility of all employees to ensure the safe and proper use and handling of Eskom monitoring and measuring equipment, and to maintain such equipment so that it remains fit for use.

The monitoring and measuring equipment shall be handled and stored as recommended by the equipment manufacturer. All employees who use such equipment shall familiarise themselves with the relevant equipment manufacturers manuals.

### **3.7 Records for Calibration**

A monitoring and measuring equipment register (240-98744265), which lists all the monitoring and measuring equipment, shall be maintained. The equipment that requires regular calibration and calibration details shall be identified on the register. Calibration certificates for the respective equipment, must be maintained by all PDE departments, and must be available when required.

The monitoring and measuring equipment register shall be checked on a monthly basis by the Appointed Responsible Person, or his/her delegate, to maintain the calibration validity of all equipment, and to ensure that equipment which requires calibration has been sent off timeously, and received within acceptable timeframes.

Calibration records shall be maintained for the last 3 calibration cycles performed on any monitoring and measuring equipment.

## **4. Authorisation**

This document has been seen and accepted by:

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## **5. Revisions**

<b>Date</b>	<b>Rev</b>	<b>Compiler</b>	<b>Remarks</b>
Aug 2015	1	C Madungwe	Final Document for Authorisation and Publication

## **6. Development team**

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## **7. Acknowledgements**

Not applicable.