



# PHARMA DEVILS

ENGINEERING DEPARTMENT

## STANDARD OPERATING PROCEDURE

<b>Department:</b> Engineering	<b>SOP No.:</b>
<b>Title:</b> Action to be taken in case of Building Management System Failure	<b>Effective Date:</b>
<b>Supersedes:</b> Nil	<b>Review Date:</b>
<b>Issue Date:</b>	<b>Page No.:</b>

### 1.0 OBJECTIVE:

To lay down the procedure for Calibration of Conductivity Meter.

### 2.0 SCOPE:

This standard operating procedure (SOP) is applicable for Calibration of conductivity meter.

### 3.0 RESPONSIBILITY:

Executive Engineering will perform the Calibration and prepare the data sheet.  
Manger Engineering will check the data sheet and calibration certificate.  
Manager QA will verify & approved the data and calibration certificate

### 4.0 PROCEDURE:

- 4.1 Prepare a conductivity reference solution using table given below
- 4.2 The listed grams of salt should be added to one liter of distilled water to obtain the listed conductivity.
- 4.3 Solutions of lower conductivity can be made by dilution with distilled water solution temperature should be as near as possible to 25°C for the best calibration accuracy, use a solution with a conductivity valve between 80 and 100% of the full measuring scale.

Desired Solution Value	
$\mu\text{s} / \text{cm}$	PPM (NaCl)
100	50
200	100
500	250
1000	500
2000	1010
3000	1530
4000	2060
5000	2610
8000	4340
110000	5560
20000	11590

- 4.4 Place Run / Test switch to run and sensor switch to appropriate position.
- 4.5 Place clean sensor in to conductivity reference solution.
- 4.6 Allow sensor to attain temperature equilibrium with the solution (approximately 10 min).
- 4.7 Adjust appropriate FINE SPAN control until display indicates the value of the conductivity solution.
- 4.8 The instrument is now calibrated (For Bela instruments conductivity meter)



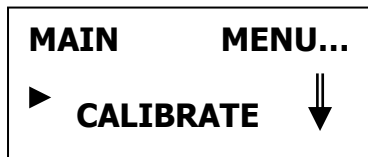
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- 4.9 For GLI conductivity analyzers after placing the sensor in the solution.  
4.10 Press Menu key to display a MAIN MENU screen if the



Screen is not showing use  or  key to display it.

- 4.11 Press enter key to display





- 4.12 Press enter key again to display



- 4.13 Press enter key again to display



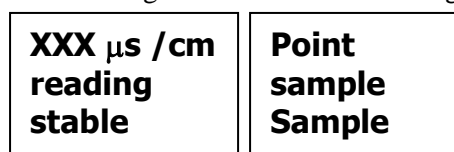
Use  or  key to view the three stages that the analog outputs can be in during calibration.

Hold outputs: Holds their present values

X FOR out puts: Transfers to present values

Active Outputs: Responds to measured values with the desired choice displayed press ENTER key to enter this selection.

- 4.14 With the sensor in the process (or conductivity reference once solution) and the screen displayed. Press enter key to confirm this active screen appears showing the measurement reading.



- 4.15 Wait for the reading to stabilize which may take few minutes. Than press enter key and please wait screen may appear if the reading is still too unstable. After the reading has stabilized this static





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- 4.16 Use arrow keys to adjust the displayed value to exactly match the known value of the process sample.
- 4.17 Press enter key to enter the value and complete calibration (confirm call ok) screen appears.
- 4.18 Calculate the % accuracy at full-scale deflection of Unit under calibration by using formula.

$$\% \text{ Accuracy at FSD} = \frac{S}{\text{F.S.}} \times 100$$

S = Deviation from standard.

F.S = Full scale deflection.

- 4.19 Note down % accuracy of F.S.D. in calibration certificate.
- 4.20 This completes the calibration record the calibration in the format (Annexure-1).

**5.0 SAFETY AND PRECAUTION:** Not Applicable

### 6.0 REVISION HISTORY

Revision No.	Reason for Revision	Superseded from & date
00	New	-----

### 7.0 REFERENCES:

IS 1248 - 1963 for Ohm Meter / Conductance meter.

### 8.0 ABBREVIATIONS:

SOP: Standard Operating Procedure.  
QA: Quality Assurance  
FSD: Full scale deflection

### 9.0 ANNEXURE:



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Annexure I: Calibration Certificate



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### ANNEXURE I CALIBRATION CERTIFICATE

Certificate No:	Calibration On:
Tested at:	Next due On:

#### ITEM DETAILS

Nomenclature: Conductivity Meter.	Location:
ID No.:	Ambient Temperature:
Range:	RH:
Least count:	Cell Constant (K):

#### OBSERVED READINGS

S.No	Conductivity of Standard Solution	Conductivity at Unit Under Calibration	Deviation in % FSD
1			
2.			
3.			
4.			
5			

IS 1248 - 1963 for Ohmmeter / Conductance meter.

REMARKS: 1) Maximum error of this instrument is within / outside specified limit.  
2) All measurement standards used for calibration are traceable  
To National Standards with unbroken chain.

Calibrated By:

Certified By: