INTERPLANT STANDARD - STEEL INDUSTRY		
IPSS	**SPECIFICATION FOR NUCLEONIC LEVEL SIGNALIZER (FIRST REVISION)**	**IPSS: 2-07-054-13 (First Revision)**
	CORRESPONDING IS DOES NOT EXIST	Formerly : IPSS: 2-07-054-93

0. FOREWORD

0.1 This Interplant Standard has been prepared by the Standards Committee on Computerization and Automation, IPSS 2:7 with the active participation of the representatives of the steel plants, other concerned organizations and established manufacturers in this field. Originally, the standard was published in 1993. Based on recent developments, it is revised and adopted in February, 2013.

0.2 This standard was first published in 1989. The first revision has been carried out to update the standard after reviewing from implementation point of view.

0.3 Interplant Standards on design parameters primarily aim at achieving rationalization and unification of parts and assemblies of process and auxiliary equipment used in steel plants and these are intended to provide guidance to the steel plant engineers, consultants and manufacturers in their design activities.

1. SCOPE

1.1 This Interplant Standard covers the requirement of nucleonic level signalizer.

2. SPECIFICATION

2.1 Type – Non contact nucleonic type.

2.2 Principle of Operation – Weakening of radio-active radiation as it passes through matter.

2.3 Source Limit

2.3.1 Radioactive source. The source should be cobalt 60 or Cs-135 or Cs-137.

2.3.2 Activity – 150 millicuries. The source activities will depend upon range of measurement, gap between source and detector and wall thickness of vessel.

2.3.3 Housing – The source shall be housed in a source holder with lead lining provided with up to 6 mm exit hole for pencil beam. Hole cover shall be provided where ever

applicable which shall be controlled remotely. Shutter should close automatically in case of power failure. Wherever applicable, Proximities switches shall be provided in source holder to actual status indication lamps. The housing shall conform to the norms specified by BARC (Max. 5 MR leakage radiation level).

2.3.4 Mounting – Flange or base mounting on a platform.

2.4 Probe Unit

2.4.1 Detector – Gamma ray GM counter.

2.4.2 Housing – Double walled water tight assembly through which cooling water can be circulated.

2.4.3 Operating temperature – 0^{o}C to 50^{o}C.

2.4.4 Control – Temperature sensors shall be provided in the detection which shall give warning contacts in case temperature inside the detection exceeds the permissible limits.

2.4.5 Mounting – Flanged / bracket.

2.5 Control Unit

2.5.1 Connection – connected to the probe unit through 25 m length of cable, enclosed in conduit where ambient temperature does not vary beyond 10-40^{o}C.

2.5.2 Control – Electro mechanical or sold state relay to actuate at a desired set point or analog Output 4-20 mA dc, wherever applicable.

2.5.3 Relay contacts – 220 V ac, 5A, 220 V dc, 2A (minimum 5 no. contacts).

2.5.4. Housing – Dustproof metal case.

2.5.5 Power Supply –: 230V $\pm$10%, 50Hz $\pm$ 5%

2.6 Warning

2.6.1 Source status warning lamps shal be installed at suitable locations to indicate status of source whether open or close. Lamps cover colour shall be green for close and red for open.

2.6.2 Proper locking mechanism shall be provided so that the source will not come to the window and to ensure that the beam cannot be opened as long as the source is in the source carrier.

2.6.3 Warning sign for presence of high voltage on device and radioactive material shall be provided on device.

3. PACKING AND TRANSPORTATION.

The packing and transportation shall follow the norms laid downed by BARC in their circular No. DRP/Adv/NLG/P-1/8, June 1984.