INTER PLANT STANDARD – STEEL INDUSTRY		
IPSS	**SPECIFICATION FOR ONLINE DUST MONITORING SYSTEM** Corresponding IS does not exist	**IPSS:2-07-091-13**

0. FOREWORD

0.1 This Interplant Standard was prepared by the Standards Committee on Instrumentation and Automation, IPSS 2:7 with the active participation of the representatives of the steel plants and reputed consulting organizations and established manufacturers in this field and was adopted on August, 2013.

0.2 Inter Plant 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 requirements of Online Dust Monitoring System.

2. OPACITY TYPE

2.1. Measuring principle

The device operates using the single/ double-pass method according to the auto-collimation principle. The light beam traverses the measuring distance once/ wice. The attenuation of the light beam by the dust content in the measuring section is measured and evaluated.

Calibration is done with reference to gravimetric measurement of dust content and optical path length for the meter under installed condition.

2.2. Standard System components

Mounting flanges

Measuring head (With light source, sensor and reflector as applicable)

Control and display unit

Optional component : *Purge air unit.*

2.3. Requirement of flue gas parameters for successful measurement:

Temperature: Above dew point up to 250° C. If the temperature is above this limit, manufacturer may be asked for providing necessary gadget (Possible upto 1000° C)
Pressure: -50 up to +20 mbar, optional higher

2.4. **Requirement of purge air for Instrument:**

Clean air at the at the flow rate upto 80 Nm3/h is necessary for the instrument optics

Specification for Opacity type Dust monitoring system

Measuring ranges	To be specified by user (possible between dust: 0-80 mg/m3 to 0-4000 mg/m3)
Supply voltage	95-264 VAC, 47-53 Hz, 30 V dc
Ambient temperature	-20 up to +50° C (If higher, user to specify)
Protection	IP65, (If Ex- proof version is required, user to specify)
Measuring outputs	4-20 mA / 500 Ohm (any other output required lke Modbus RTU, Profibus DP etc. user to specify)
Display and control	LED/LCD with back light for configuration/ parameter setting, calibration and display of dust content.
Auto correction	To be specified by user if there is a chance of wide variation of parameters from specification (Facility for correction for temperature, pressure and other interfering components like water oxygen etc)
Accuracy	1% of measuring range or better
Reference point drift	0.4% of measuring range/month or less
Zero point drift	0.4% of measuring range/month or less
Digital outputs	Programmable relay outputs, (no. and rating to be specified by user if required)
Digital inputs	Programmable potential free Inputs (no. and rating to be specified by user if required)

Duct diameter	To be specified by user (faithful measurement is possible in duct size of 1 m to 10 m dia.)
Protection required for optical system	Automatic quick-closing of shutters to protect the measuring head and the reflector in the event of failure of the purge air.
Calibration facilty	Facility to be provided for calibration by user at site.
Optional accessory: Purge Air unit	
Purge air quantity	approx. 80 m3/h
Supply voltage	115/230 VAC, 50/60 Hz
Protection	IP65

3. Triboelectric type

3.1. Dust Monitor,On-Line, Tribo electric type

RANGE	0-400mg/m3
Process condition	Mention particle size range, Stack diameter, flow rate, temp. range and pressure range for particular application
Sensor Material	SS-316
Sensor insertion length	Depending on stack size, size and no. of sensors to be chosen
Power supply	230 VAC,50 HZ
Display	LED/LCD with back light for configuration/ parameter setting, calibration and display of dust content.
Out put	4-20 mA DC / 500 Ohm , Contact output: Number of output. and contact rating to be specified by user
Accuracy	+/-1% of measuring range
Distance between sensor and electronic unit	To be specified by user and required length of cable to be asked from supplier