Welcome to the OPSIS Presentation

Online & Portable Instrumentation for Process & Pollution Monitoring in Pharmaceutical & Chemical Industries

By

Kishor Kumar
Country Manager – India,Sri Lanka,
Bangladesh & Indonesia Operations
OPSIS AB , Sweden
kishor@opsis.se
Mob : 00 91 94440 33220 / 9791 292 292

(33 Years in the Field of Instruments for Process & Pollution Monitoring)
Includes: 24 Years Experience with OPSIS DOAS technology)

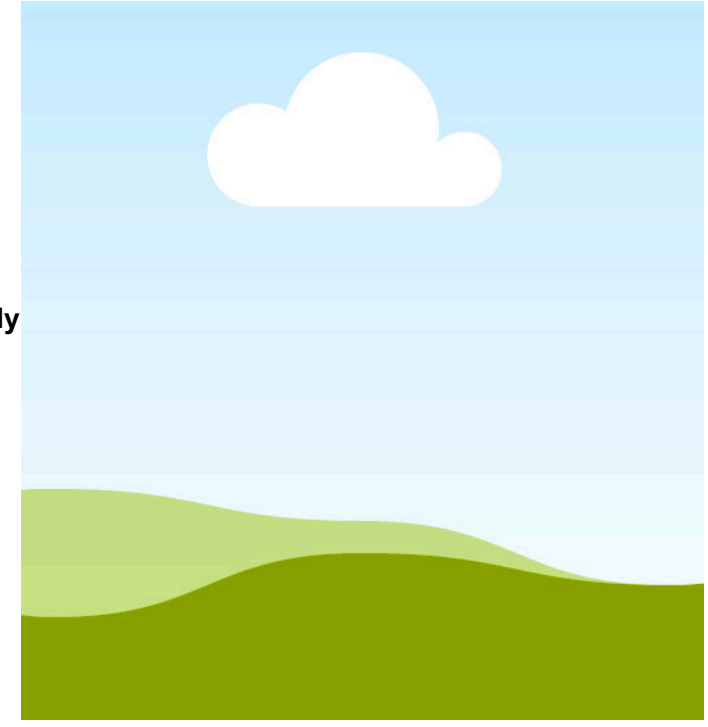
INTRODUCTION

OPSIS is a Swedish company which develops, Manufactures and supplies total solutions for

Ambient Air Quality Monitoring,
Stack Emission Monitoring
and software tools for Air Quality Management.

Founded 1985, current turnover(2022) , 300 M Euro

OPSIS is represented world-wide, with internationally accepted and approved products.



TÜV Rheinland

中华人民共和国 计量器具型式批准证书

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

EPA United States Environmental Protection Agency

"...to protect human health and to safeguard the natural environment..."

CERTIFIED ISO 9001 ISO 14001 SEMKO-DEKRA

SWEDAC ACKREDITERING 1386 ISO/IEC 17025

CE

ISO 9001
- Quality

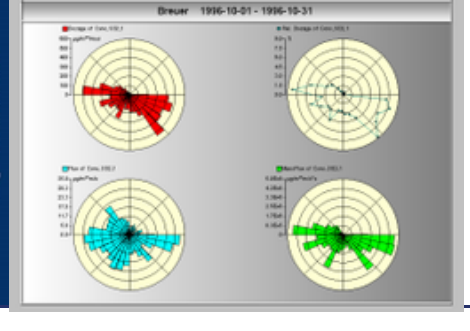
ISO 14001
- Environment

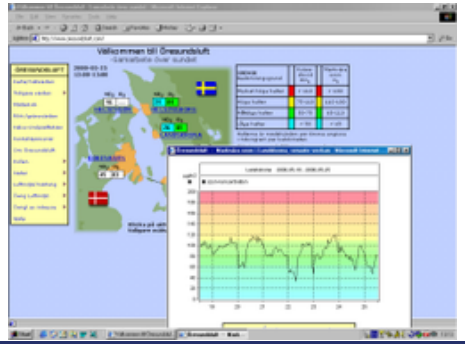
ISO 17025
- Calibration laboratory
- Ackreditation laboratory

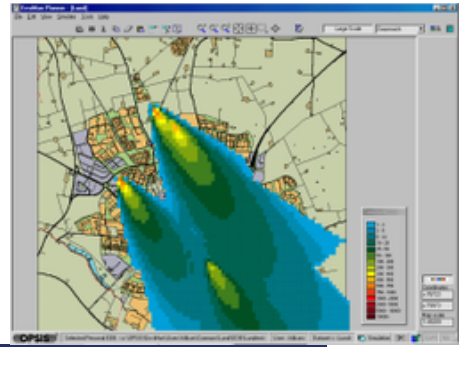
opsis.se

Click to edit the title text format

- **OPSIS**
  - **Develops, manufactures and markets…**
  - **monitoring equipment and software…**
  - **for ambient air pollution monitoring…**
  - **as well as for process control and emission monitoring.**
- **”OPSIS” means ”visual strength” in Classic Greek.**

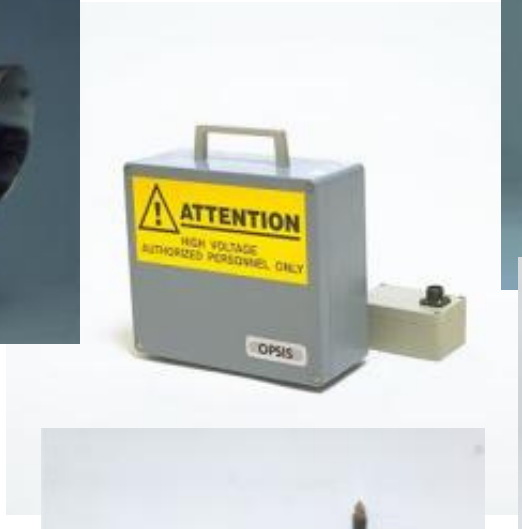


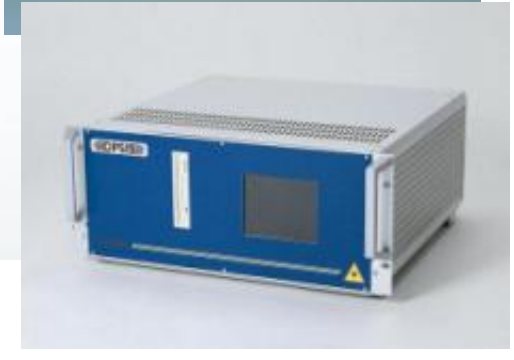


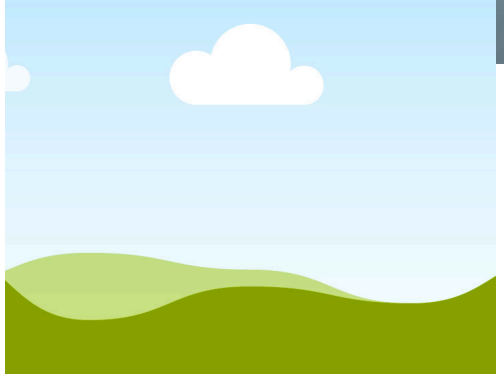


opsis.se

Click to edit the title text format







opsis.se

Click to edit the title text format

Street

Mobile

City

Background

Industries

Airports

Click to edit the title text format

opsis.se

Power plants

Waste Incineration

Cement plants

Steel plants

Chemical Industries

Sulfuric Acid plants

NEVCO ENGINEERS PVT LTD, New Delhi
(Having 15 Branch Offices across India)
(AN ISO 9001 , ISO 27001 COMPANY)

Under the Leadership of Mr.Adarsh Kapur, M.D.
M.Tech (Instrumentation)

www.nevcoengineers.com

(since 1988, Head Office : New Delhi)
Strength : 100 Engineers (Sales & Service)

OPSIS : Sales/Installation/Maintenance Experience
330 CEMs + 320 CAAQMs = 650 Analysers

TECHNOLOGIES For Continuous Stack Emission Monitoring

opsis.se

Continuous Emission Monitoring

Methods (3 Extractive + 3 Insitu) = Totally 6

YOU NEED TO CHOOSE ONE

1. **Dry extractive**
2. **Wet-hot extractive**
3. **Dilution extractive**

4. **In Situ Probe Type—diffusion**

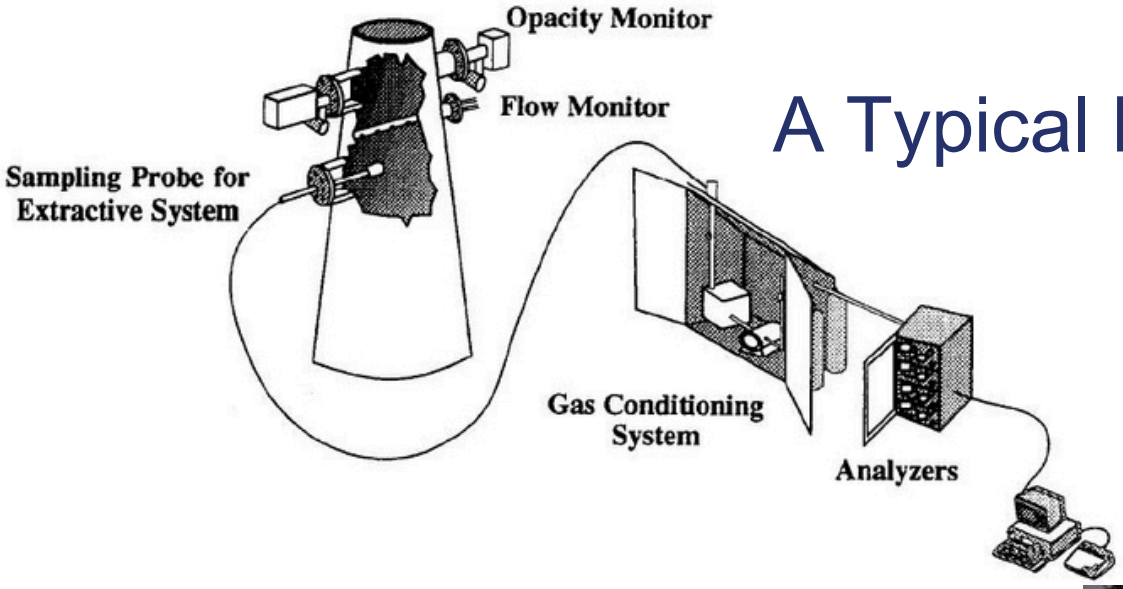
5. **In Situ Cross Stack Type—Spectrometer in Stack**

6. **In Situ Cross Stack Type—Spectrometer in A/C Room**

Techniques

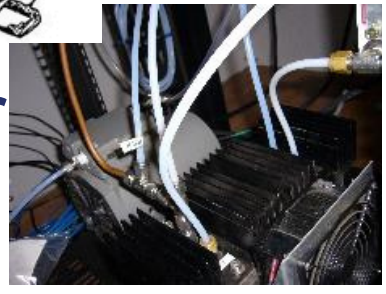
- **DOAS**
- **FTIR**
- **NDIR**
- **IR absorption**
- **UV absorption**
- **Chemiluminescence**
- **UV-fluorescence**
- **Laser Diode**

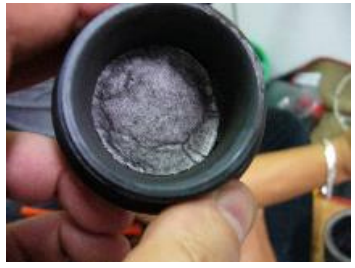
A Typical Extractive CEMS

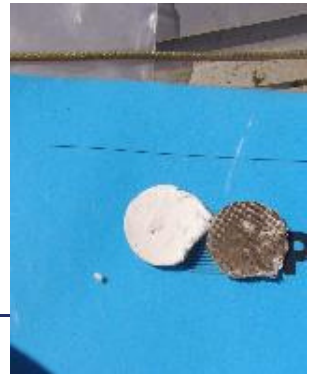


Click to edit the title text for

- Filters
- Heaters
- Dryers
- Sample lines
- Multiple connectors
- Multiple tubing
- Detectors
- Sensors
- Orifices

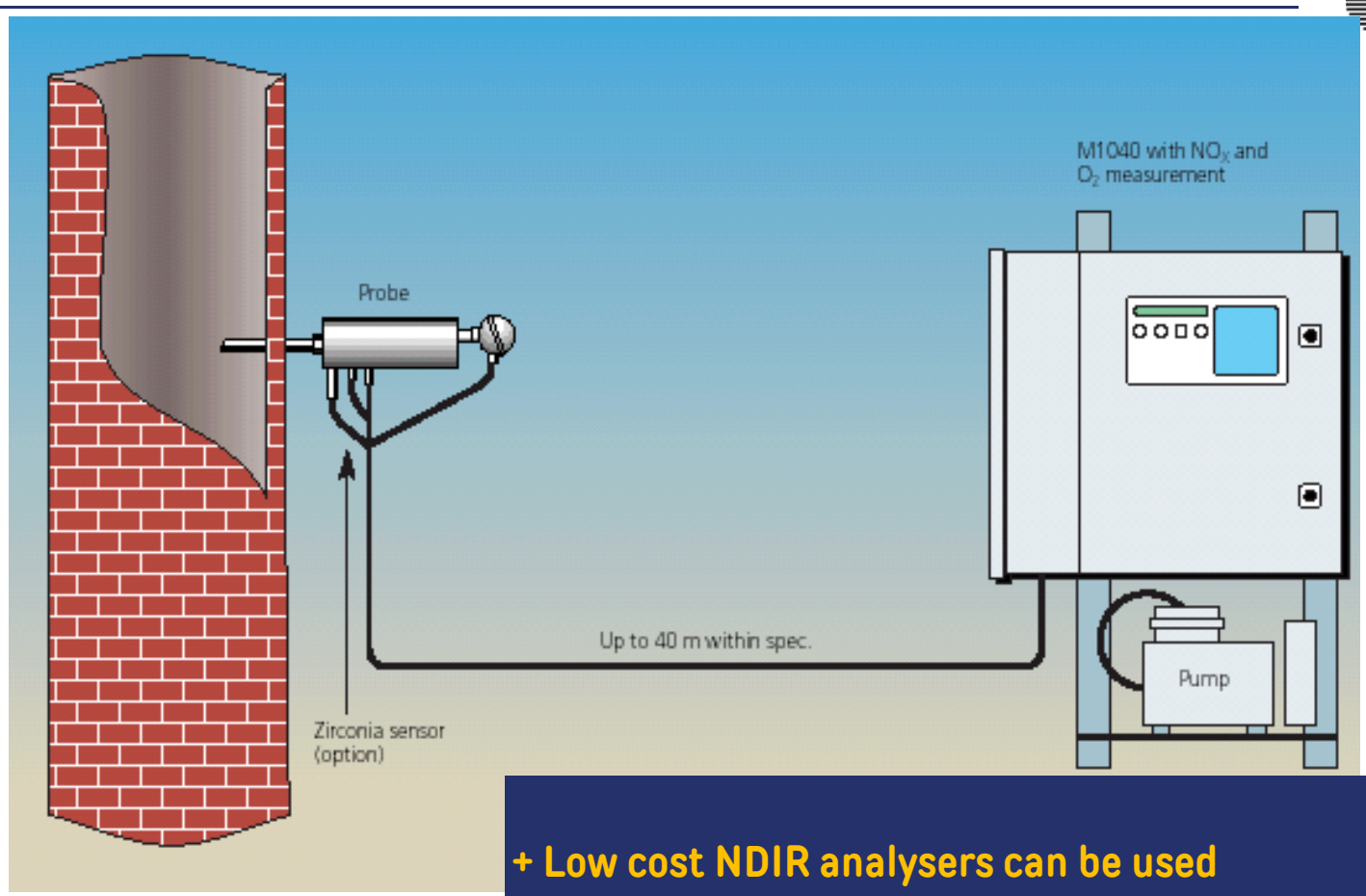






opsis.se

Extractive Methods



Dry extractive

+ Low cost NDIR analysers can be used
- Not suitable with high dust loads
-Water removal changes the sample condition

Wet-hot extractive

+ Multigas analysers can be used
- Expensive
- Hot sample requires advanced heating systems
- Sensitive for power failures and high dust loads

ed

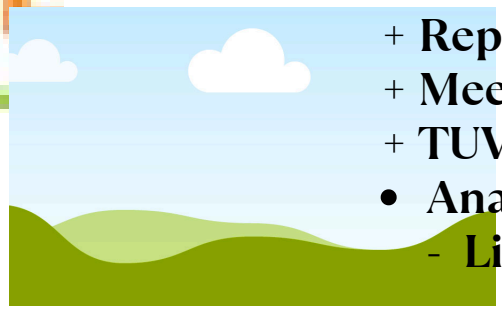
+ Sample is dry and clean
+ Low initial cost
- Requires correct dilution
- Not suitable for monitoring low concentrations

In-Situ Methods

In-Situ , Probe Type Simple installation

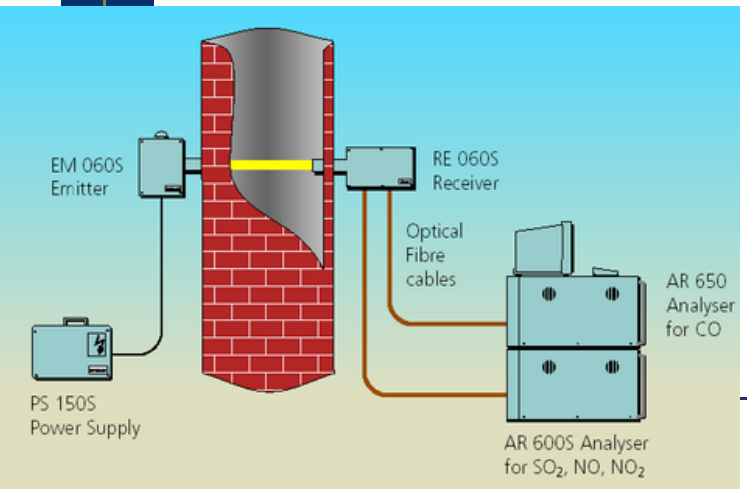
w cross interference sensitivity
nited number of gases can be monitored
me models do not meet US EPA requirements
t representative sample
lyser stack mounted (vibrations, temperature)

In-Situ, cross-stack (Spectrometer in stack)



+ Representable sample
+ Meeting US EPA calibration requirements
+ TUV approved
- Analyser Stack Mounted(vibrations, temper)
- Limited number of gases can be monitored

In-Situ, cross-stack (Spectrometer in A/C Room)



+ Reliable (analyser not stack mounted (OPSIS)
+ Representable sample
+ Meeting US EPA calibration requirements
+ TUV approved (OPSIS)
+ Several hundreds of references world-wide
- Cross interference possible (non-DOAS systems)

STORY OF INSITU PROBE TYPE ANALYSER ON 1ST DAY

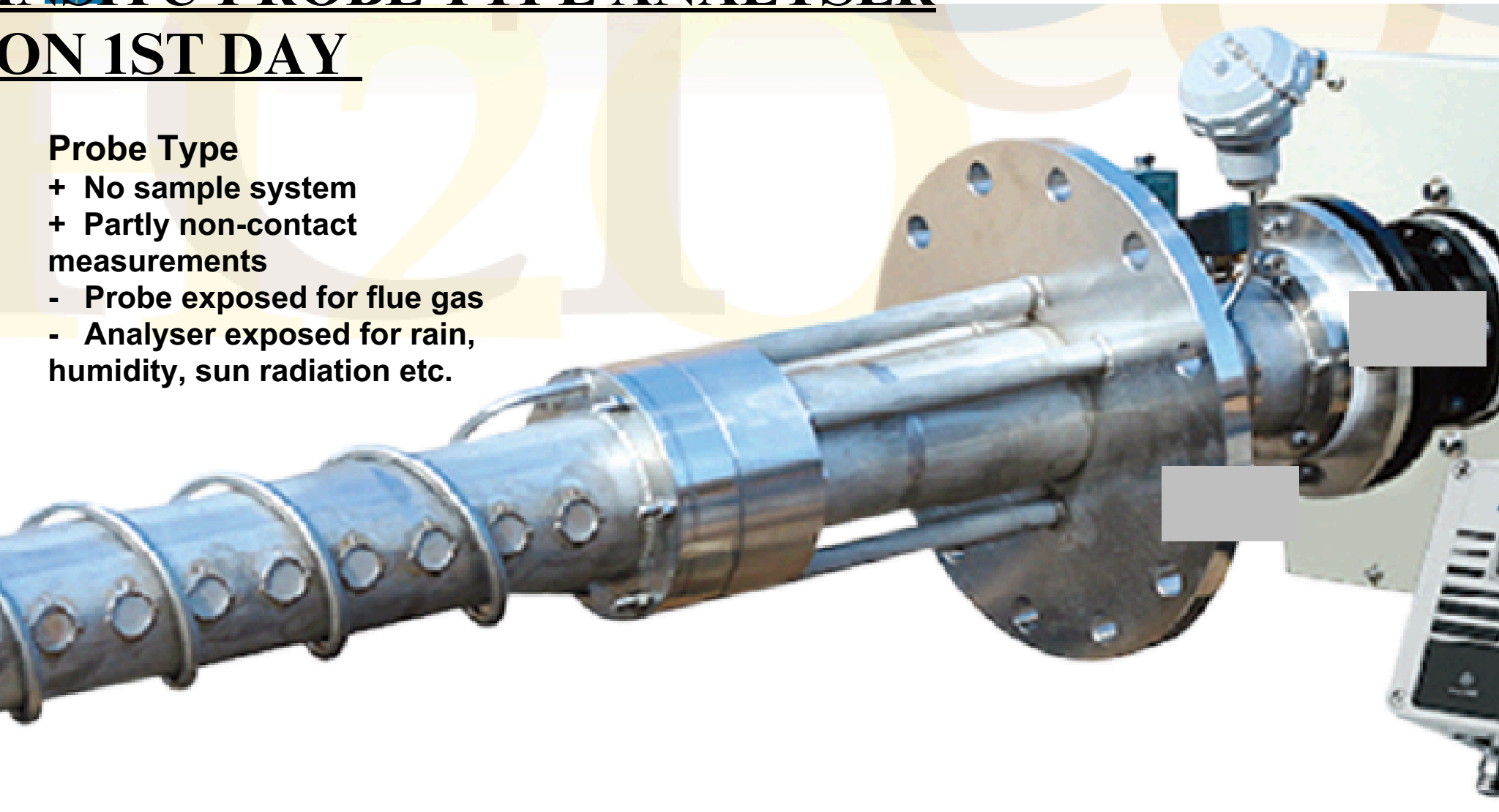
Probe Type

+ No sample system

+ Partly non-contact measurements

- Probe exposed for flue gas

- Analyser exposed for rain, humidity, sun radiation etc.



MORE CLOSER LOOK ON THE INSITU PROBE TYPE ANALYSER : SINTERED FILTERS WORKING ON DIFFUSION PRINCIPLE GETTING CHOKED !!!

opsis.se

CLEANING WITH HIGH PURGE AIR : UNABLE TO CLEAN IT PERFECTLY

SO2,NO,NO2,NH3

- **Analyser Stack Mounted(vibrations, temper)**
  - **Limited number of gases can be monitored**

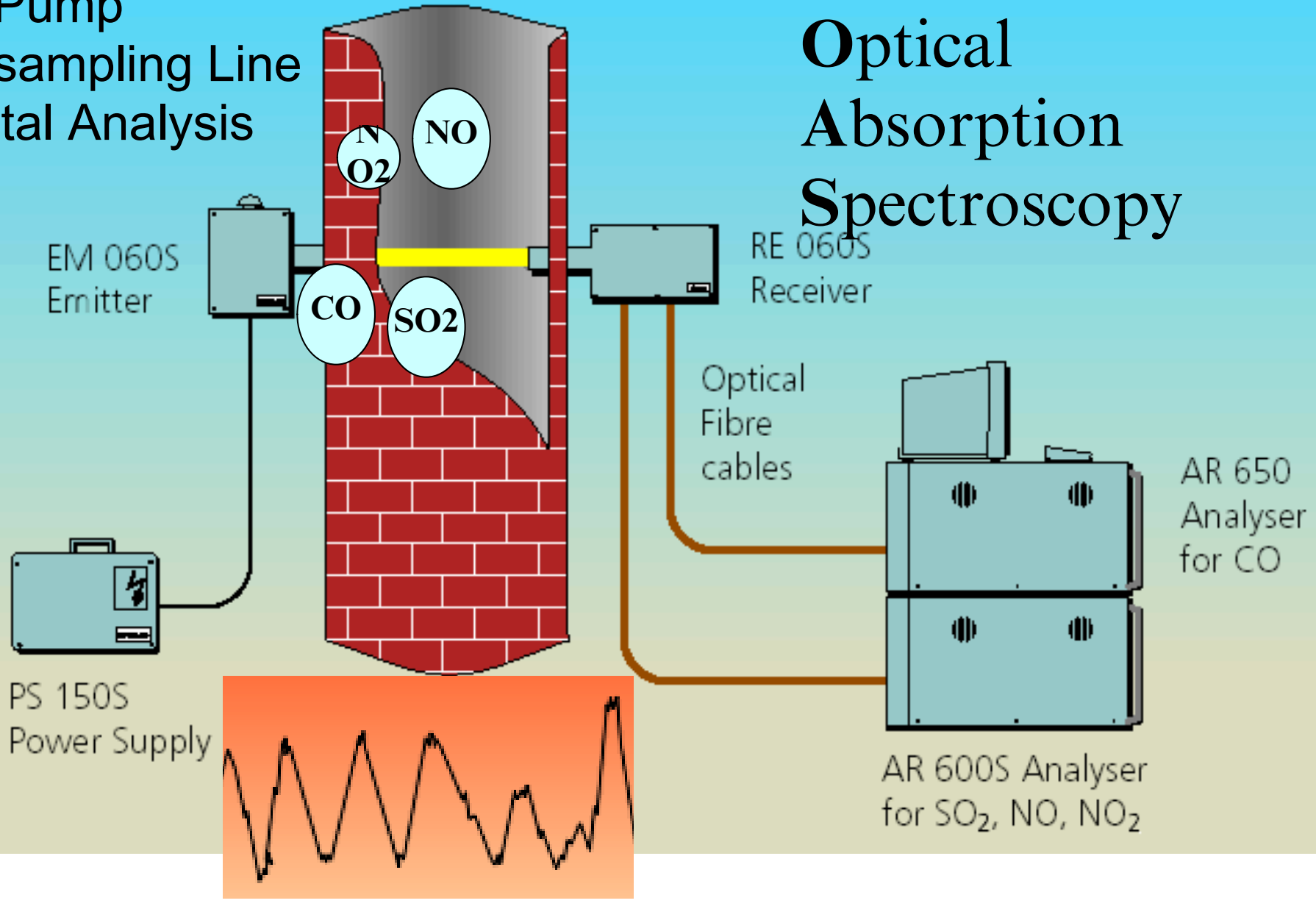
Insitu – Spectrometer in Stack
Complete Electronics in Stack

SO2,NO,NO2,NH3

OPSIS TECHNIQUE

- No Pump
- No sampling Line
- Digital Analysis

Differential
Optical
Absorption
Spectroscopy

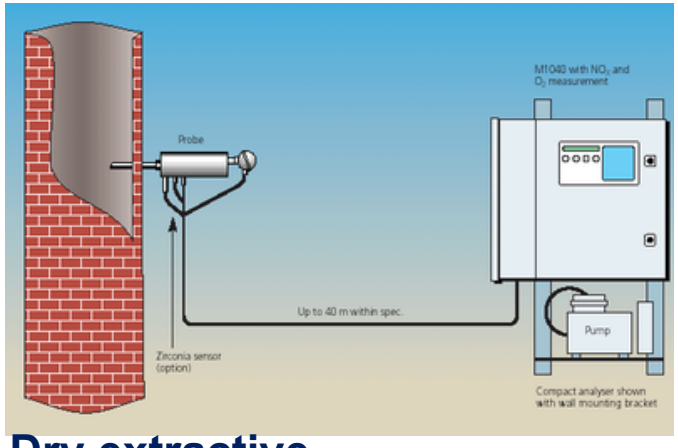


Insitu – Spectrometer in Air Condition Room

opsis.se

Extractive Methods

In-Situ Methods



Dry extractive

+ Low cost NDIR analysers can be used
- Not suitable with high dust loads
-Water removal changes the sample condition

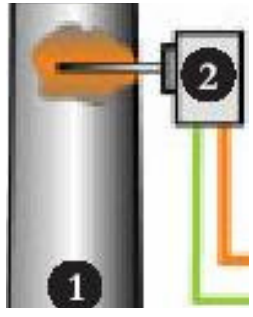
Wet-hot extractive

+ Multigas analysers can be used
- Expensive
- Hot sample requires advanced heating systems
- Sensitive for power failures and high dust loads

Dilution extractive

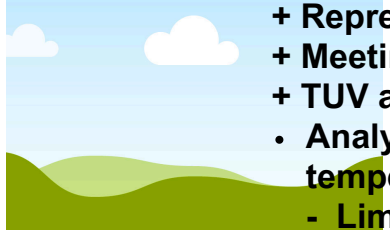
+ Ambient type analysers can be used
+ Sample is dry and clean
+ Low initial cost
- Requires correct dilution
- Not suitable for monitoring low concentrations

In-Situ , Probe Type



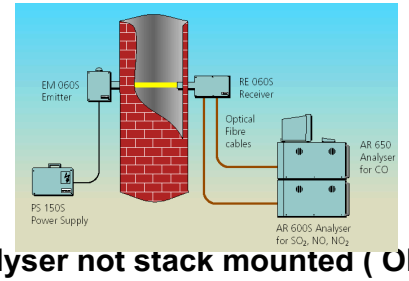
+ Simple installation
+ Low cross interference sensitivity
- Limited number of gases can be monitored
- Some models do not meet US EPA requirements
- Not representative sample
- Analyser stack mounted (vibrations, temperature)

In-Situ, cross-stack (Spectrometer in stack)



+ Representable sample
+ Meeting US EPA calibration requirements
+ TUV approved
- Analyser Stack Mounted(vibrations, temper)
- Limited number of gases can be monitored

In-Situ, cross-stack (Spectrometer in A/C Room)



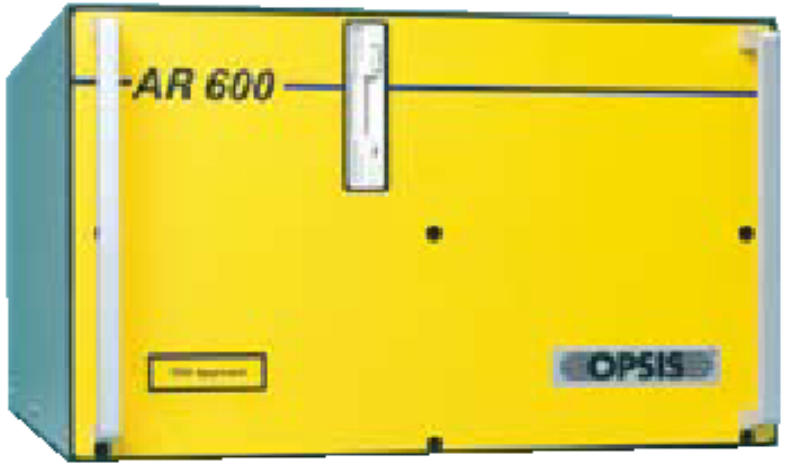
+ Reliable (analyser not stack mounted (OPSIS)
+ Representable sample
+ Meeting US EPA calibration requirements
+ TUV approved (OPSIS)
+ Several hundreds of references world-wide
Cross interference possible (non-DOAS systems)

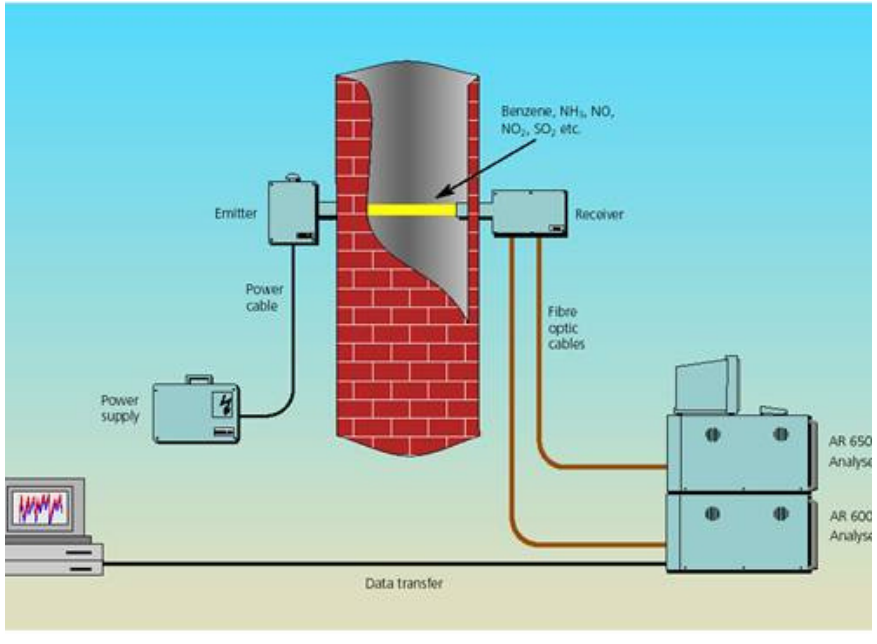
opsis.se

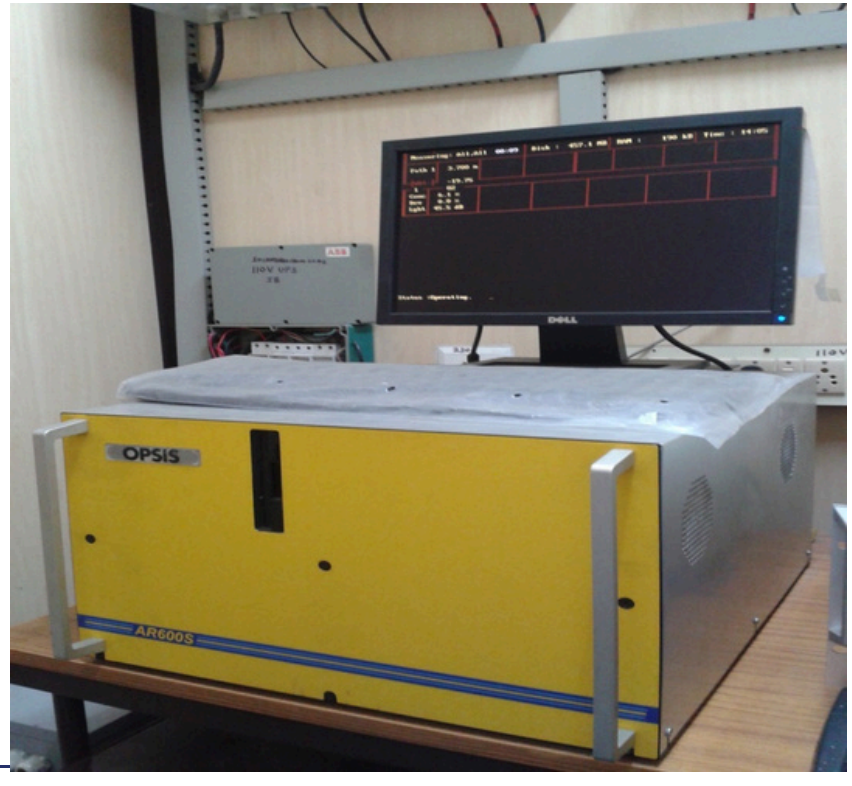
- **EXTRACTIVE MONITORING**

INSITU CROSS STACK

INSITU CROSS STACK TYPE







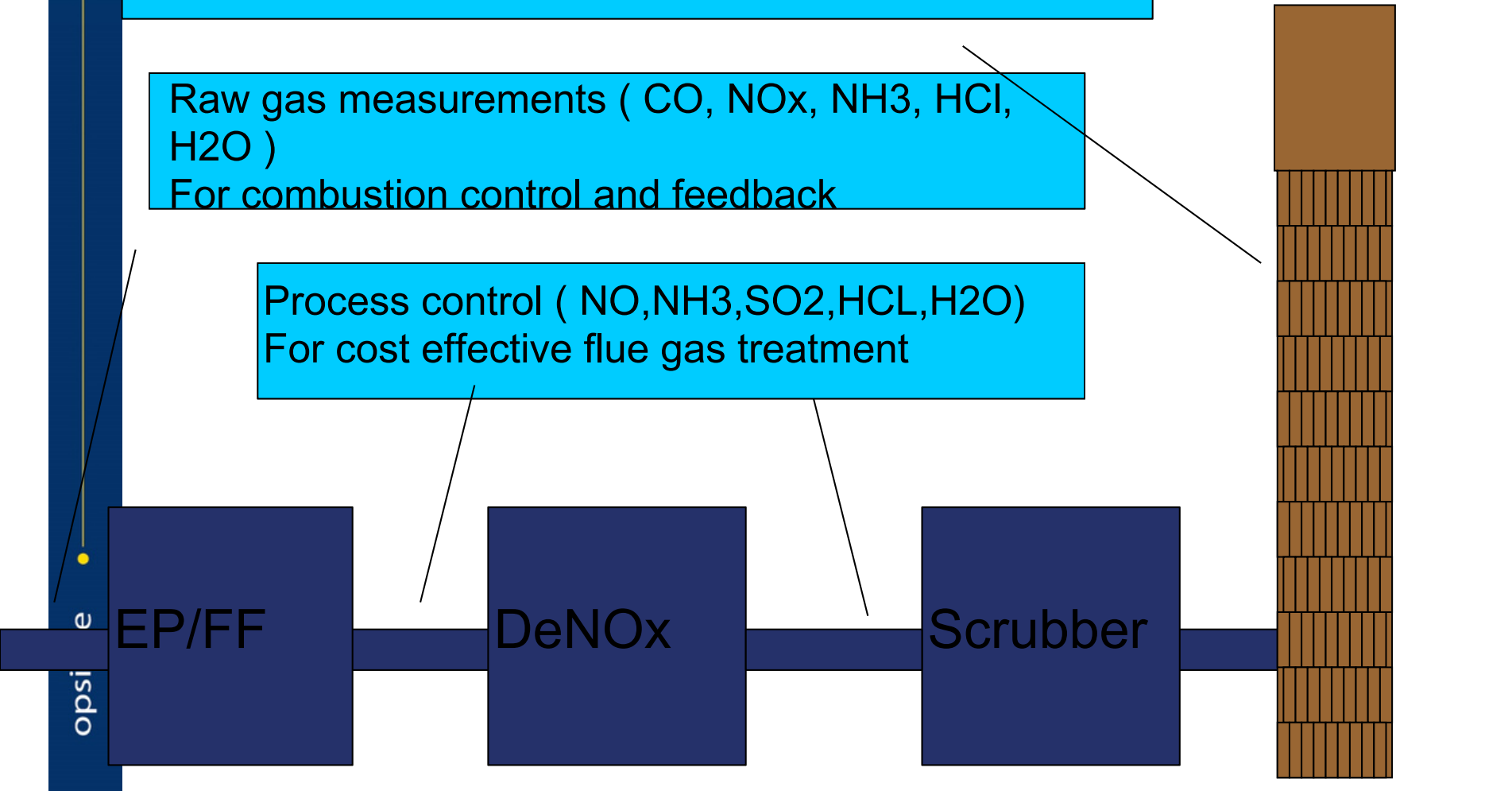
opsis.se

Click to edit the title text format

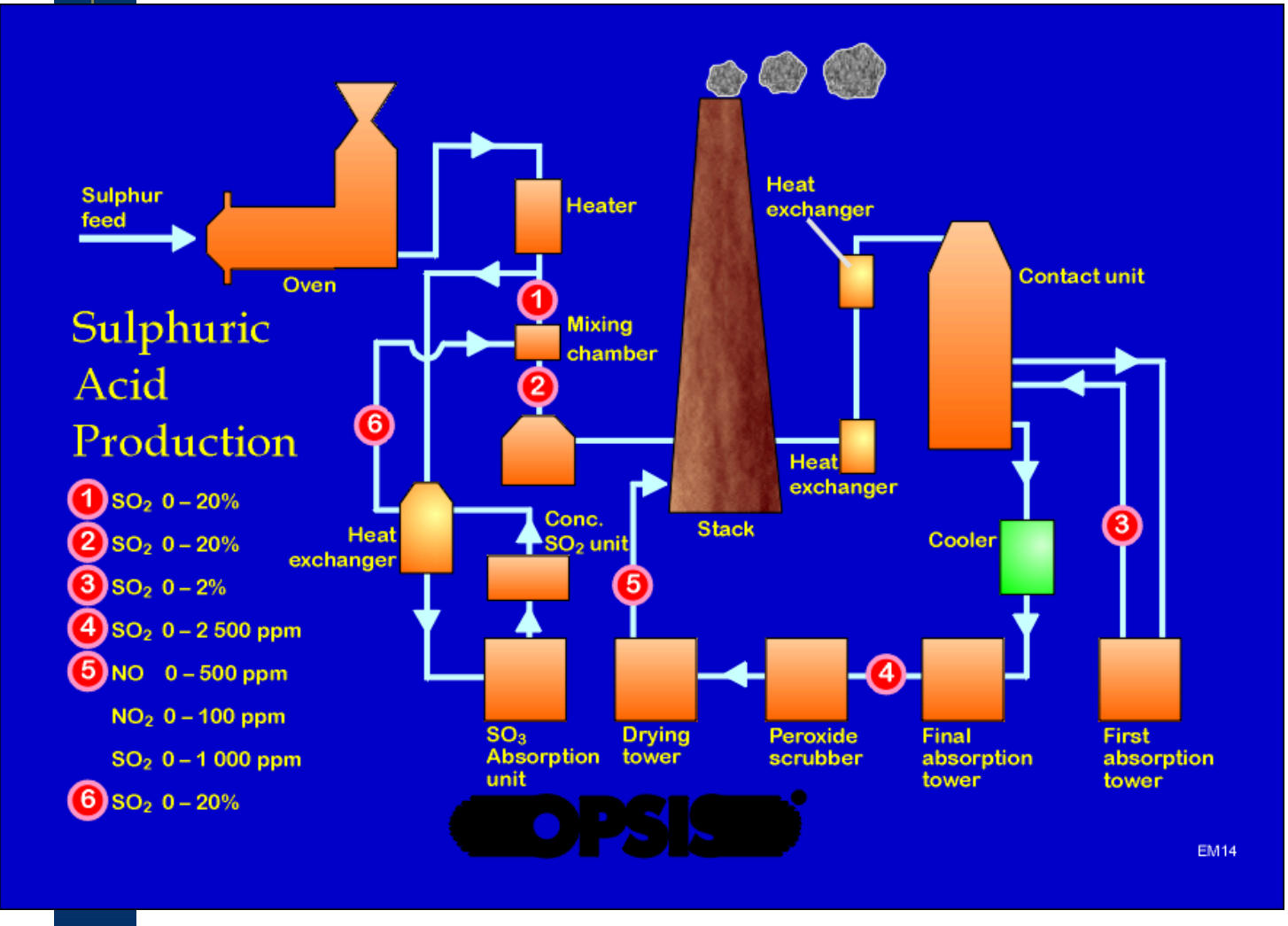
Emission Monitoring(NOx,SO2,CO,CO2,HCL,HF,Hg…)
To comply with Environmental Regulations

Raw gas measurements (CO, NOx, NH3, HCl, H2O)
For combustion control and feedback

Process control (NO,NH3,SO2,HCL,H2O)
For cost effective flue gas treatment



Click to edit the title text format



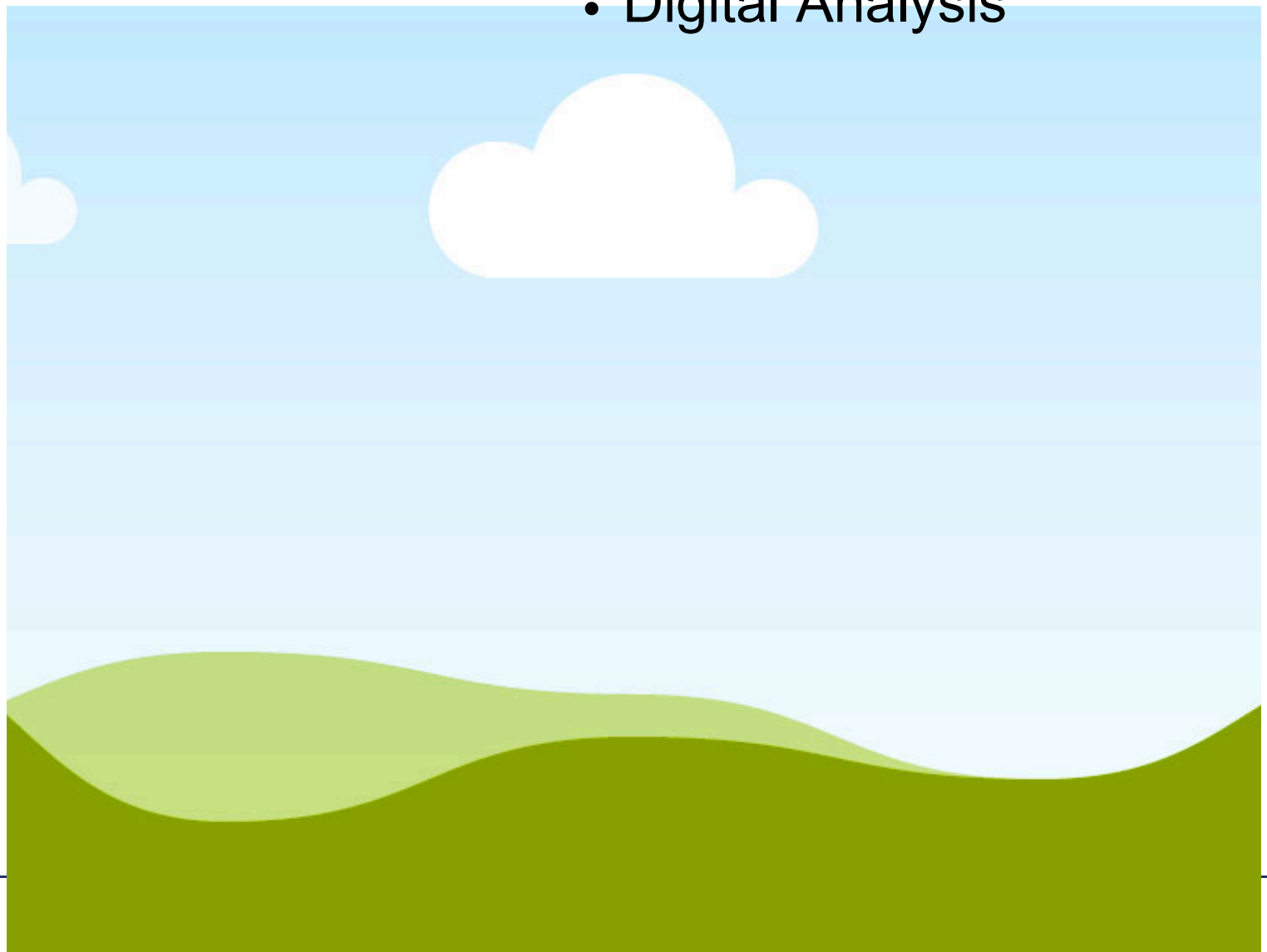
One analyser used for monitoring 6 locations !

No sampling system or gas conditioning!

In operation for almost 20 years !

- Reduced cost
- Reduced maintenance
- Reduced calibrations
- Suitable for DeSOx, DeNOx

- Optical Multiplexing
- No Pump
- No sampling Line
- Digital Analysis

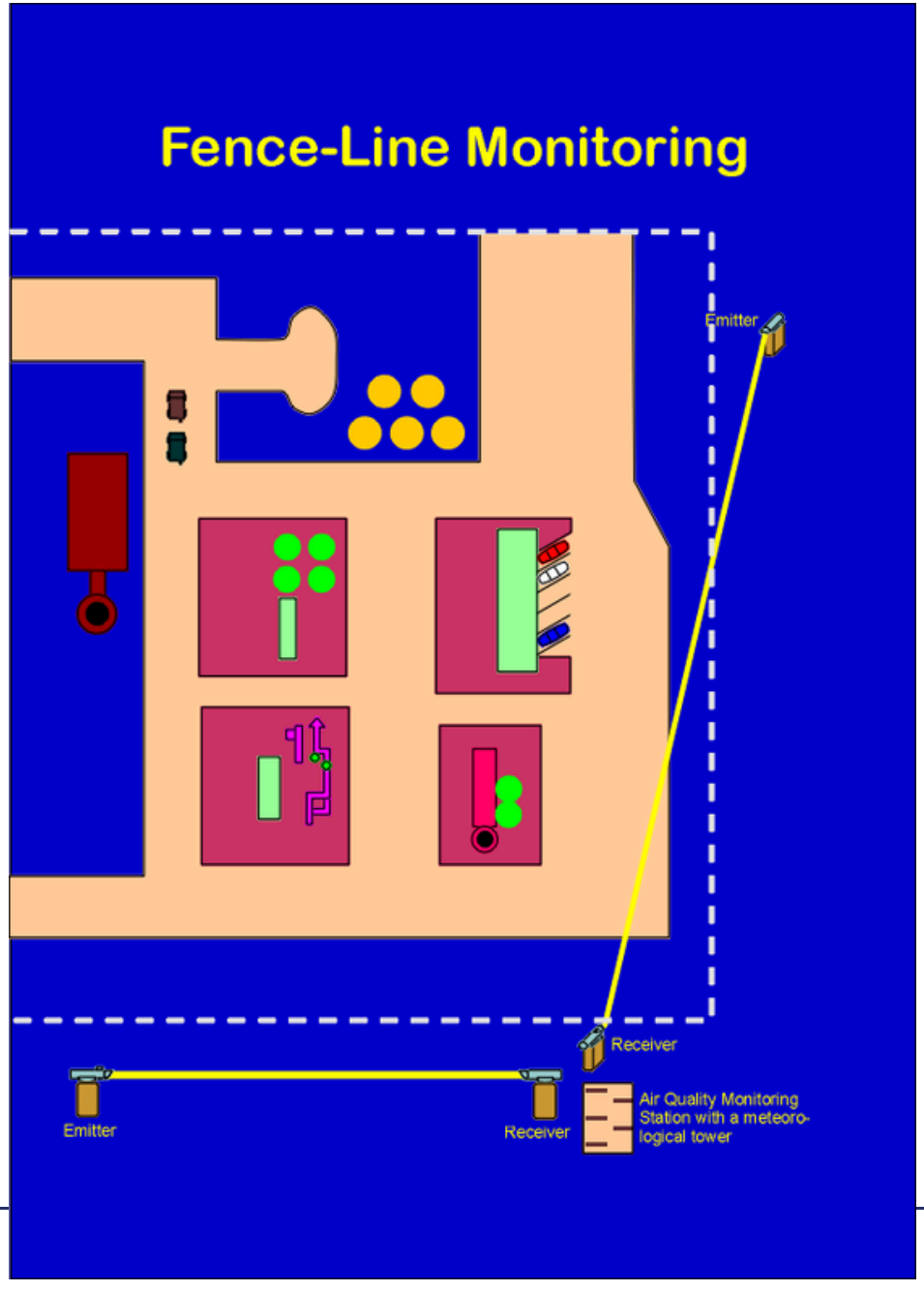


opsis.se

TECHNOLOGIES For Continuous Ambient Air Quality Monitoring

opsis.se

SO2,NO2,O3,NH3,BTX MONITORING IN AMBIENT AREA UPTO 2 KM



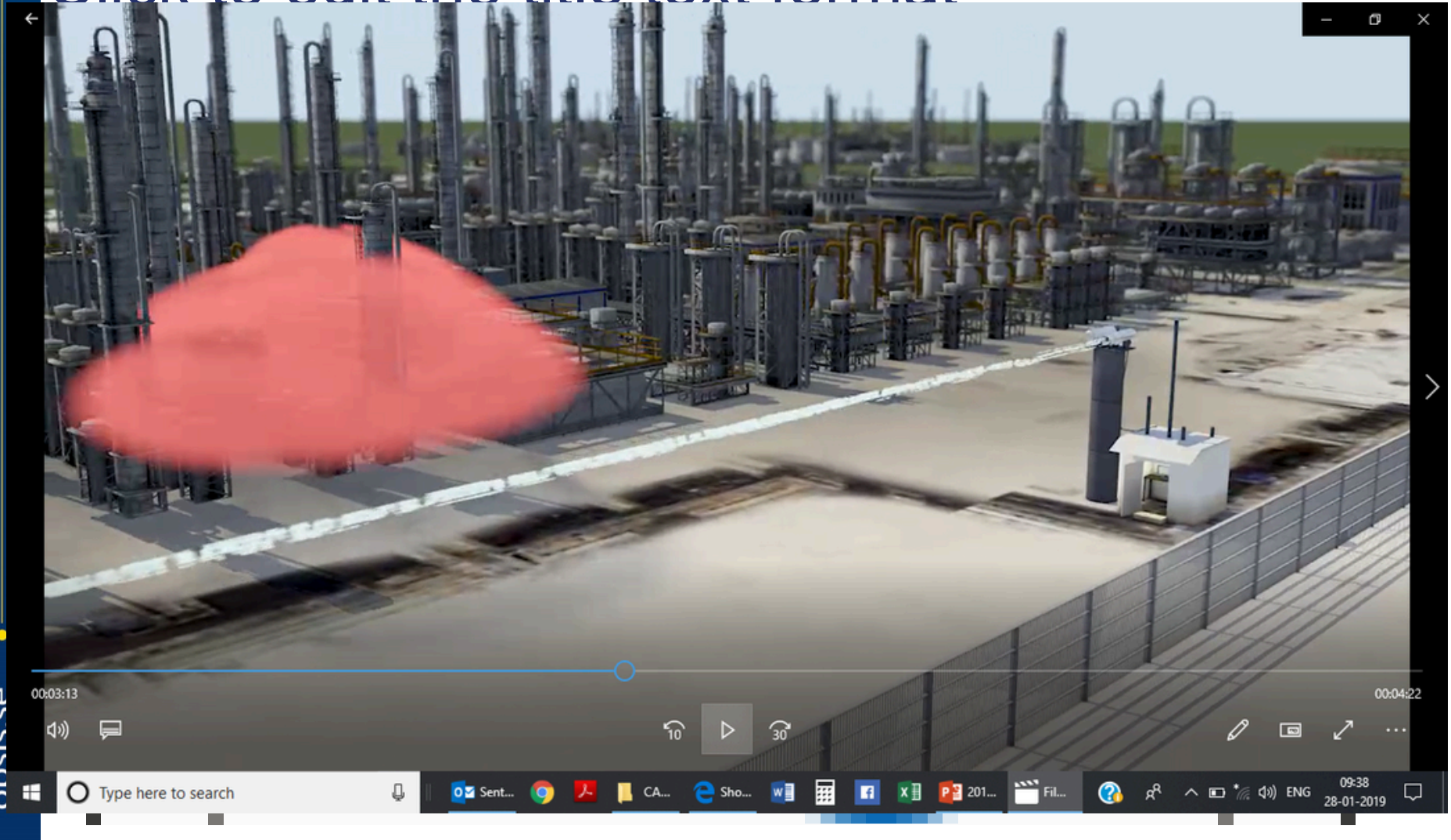
opsis.se

Click to edit the title text format

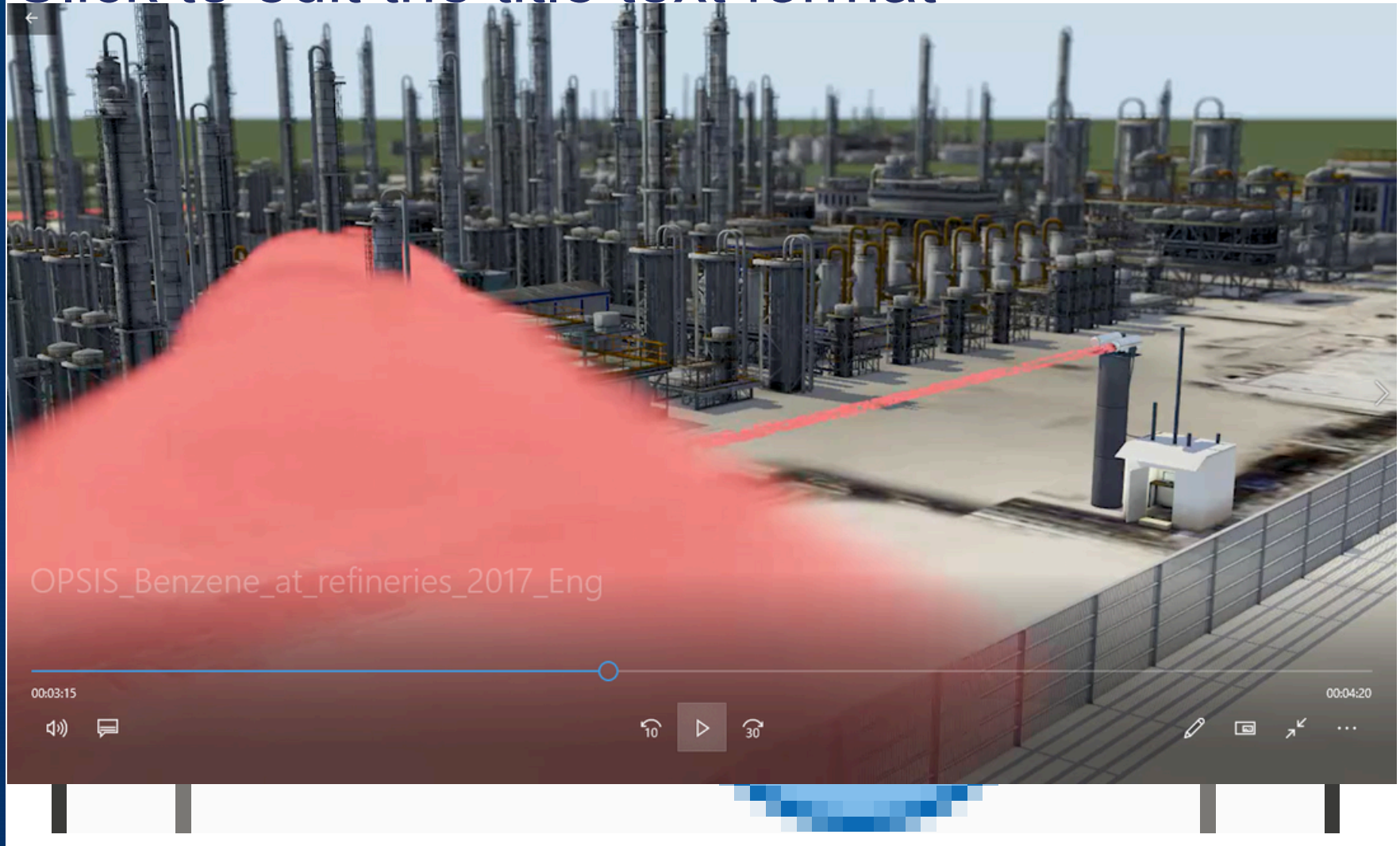
opsis.se

Click to edit the title text format

Click to edit the title text format

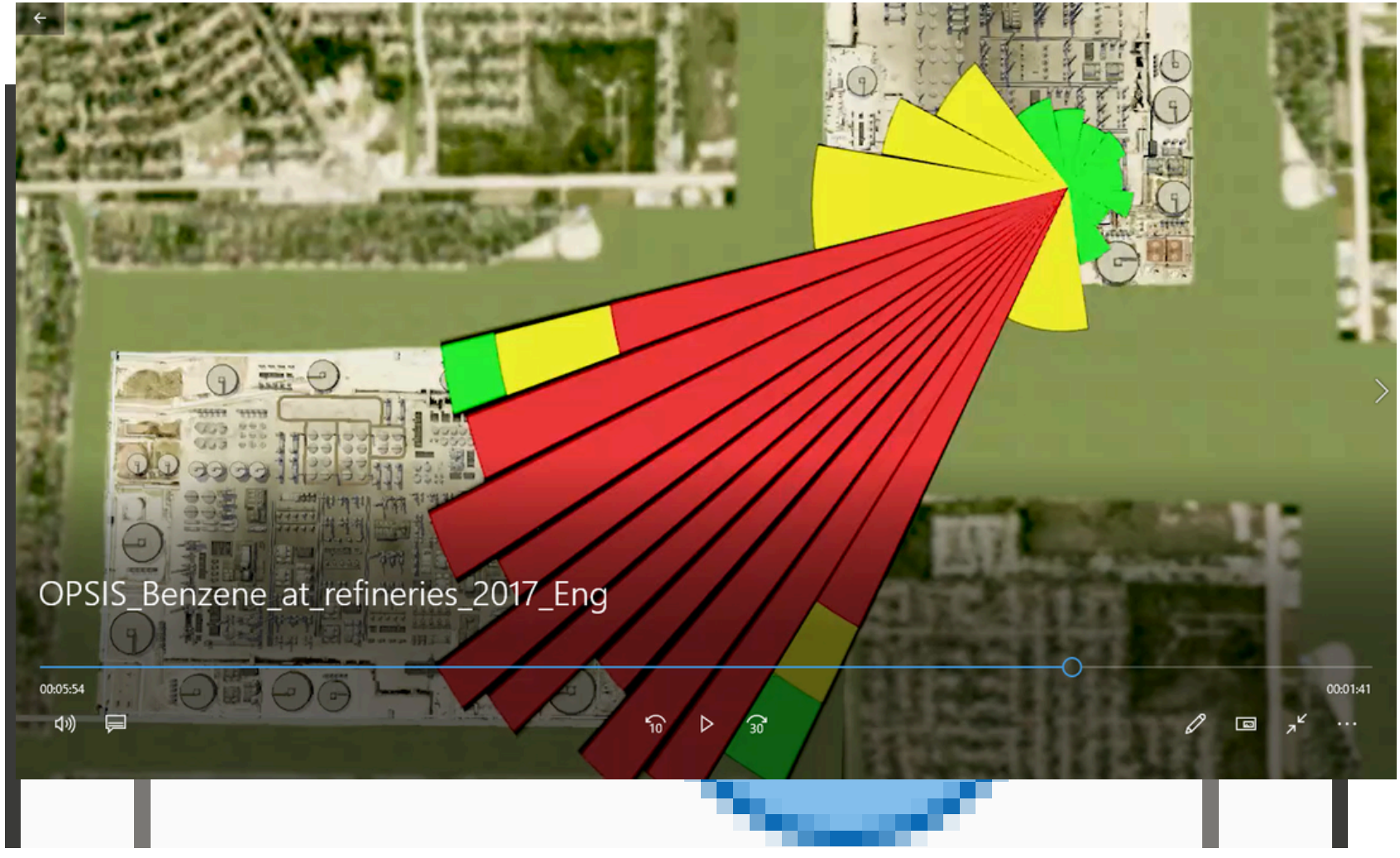


Click to edit the title text format



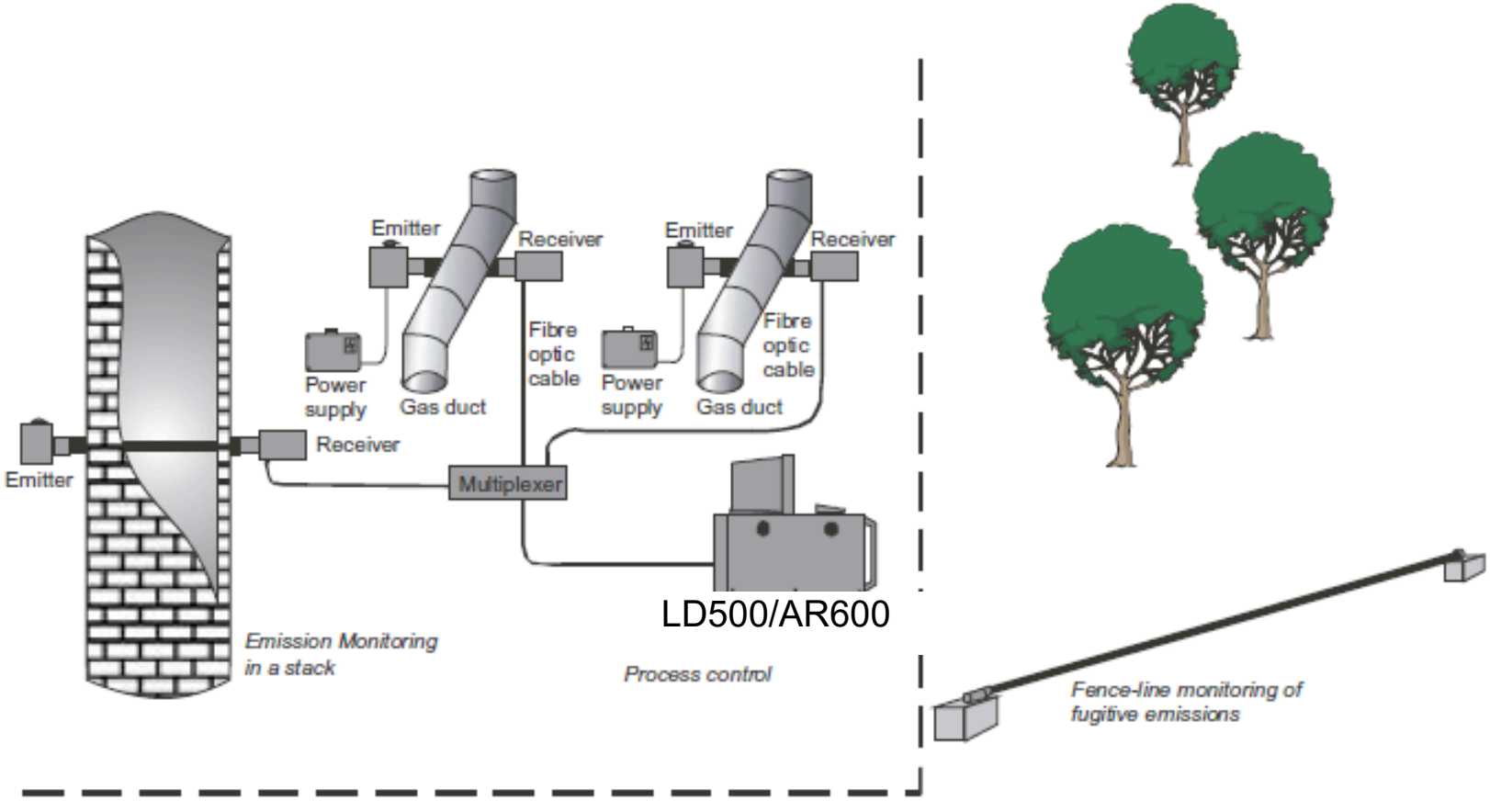
opsis.se

Click to edit the title text format



opsis.se

Monitoring AQM, CEM and Process using one analyser



The Opsis system is designed for process controll, emissions monitoring and fence-line monitoring of fugetive emissions at and around a fertilizer plant.

SO2 ***PM10***

NO2 ***PM2.5***

OZONE ***Lead***

Ammonia ***Benzopyrene***

Benzene ***Arsenic***

CO ***Hg*** ***Nickel***

AMBIENT SPM / RSPM ANALYSER

opsis.se

European Reference Method (EN 12431)

TSP/PM10/PM2.5/PM1.0

Worlds only combined Beta monitor and 47 mm diam. filter sampler

Temperature controlled inlet (TS200)

Direct calibration of the monitor using gravimetric weighing of sampled filters

Allows full lab analysis of filters

Up to 80 days unattended operation

Remote control via RS232/modem

US EPA Equivalent method

Complete Automatic weather stations

Complete range of Data logger

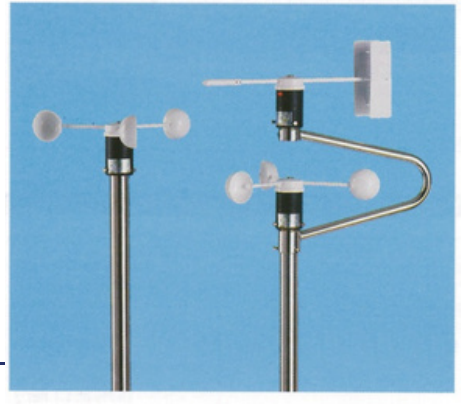
Wide range of sensors

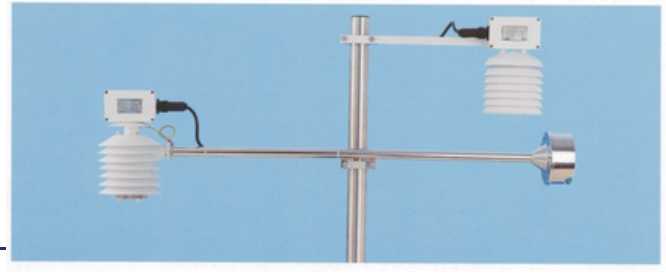
All the accessories for a complete installation

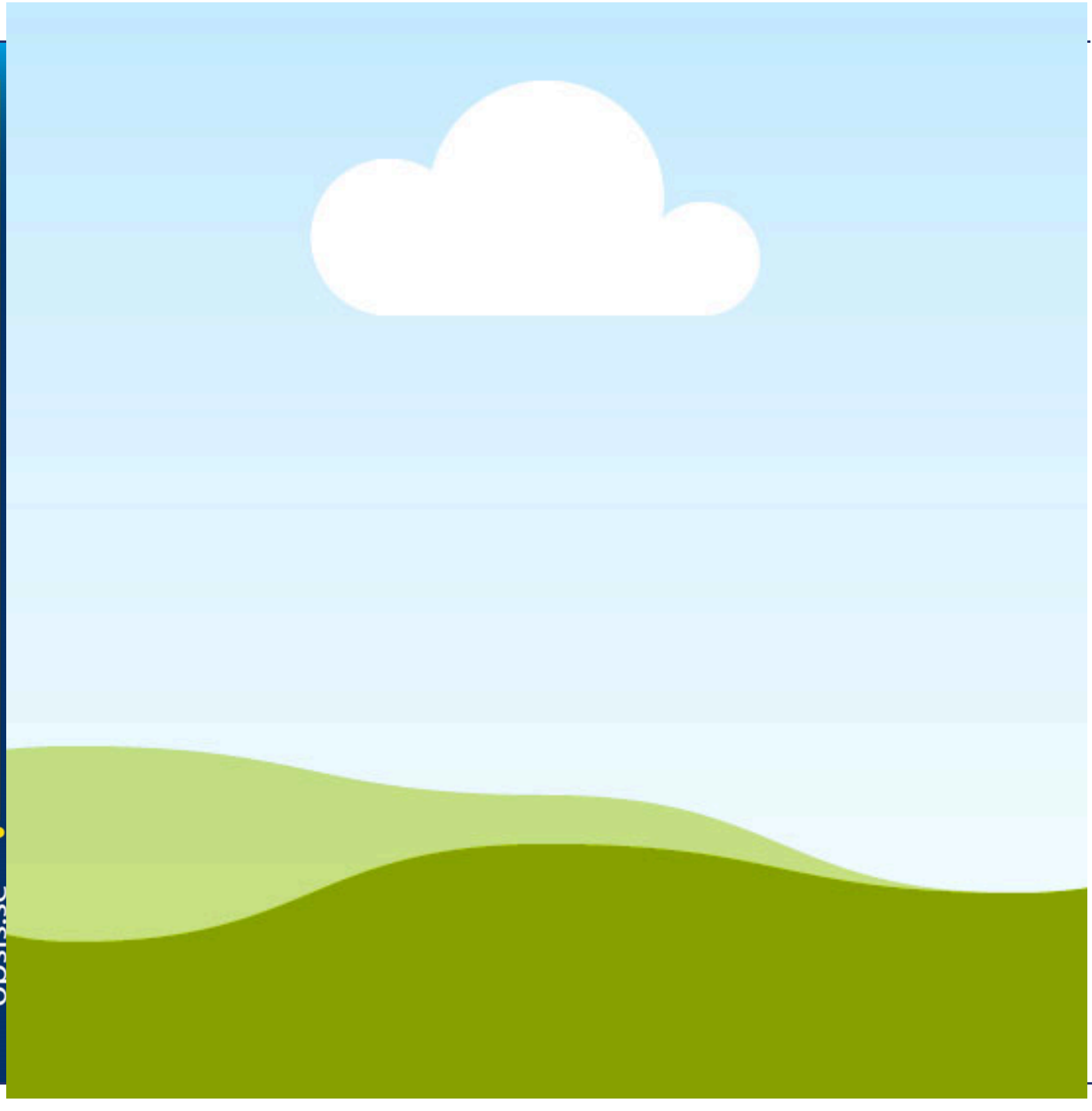
Many communication media options

Range of PC program availability

Complete range of sensor with analogue output to measure all the meteorological parameters

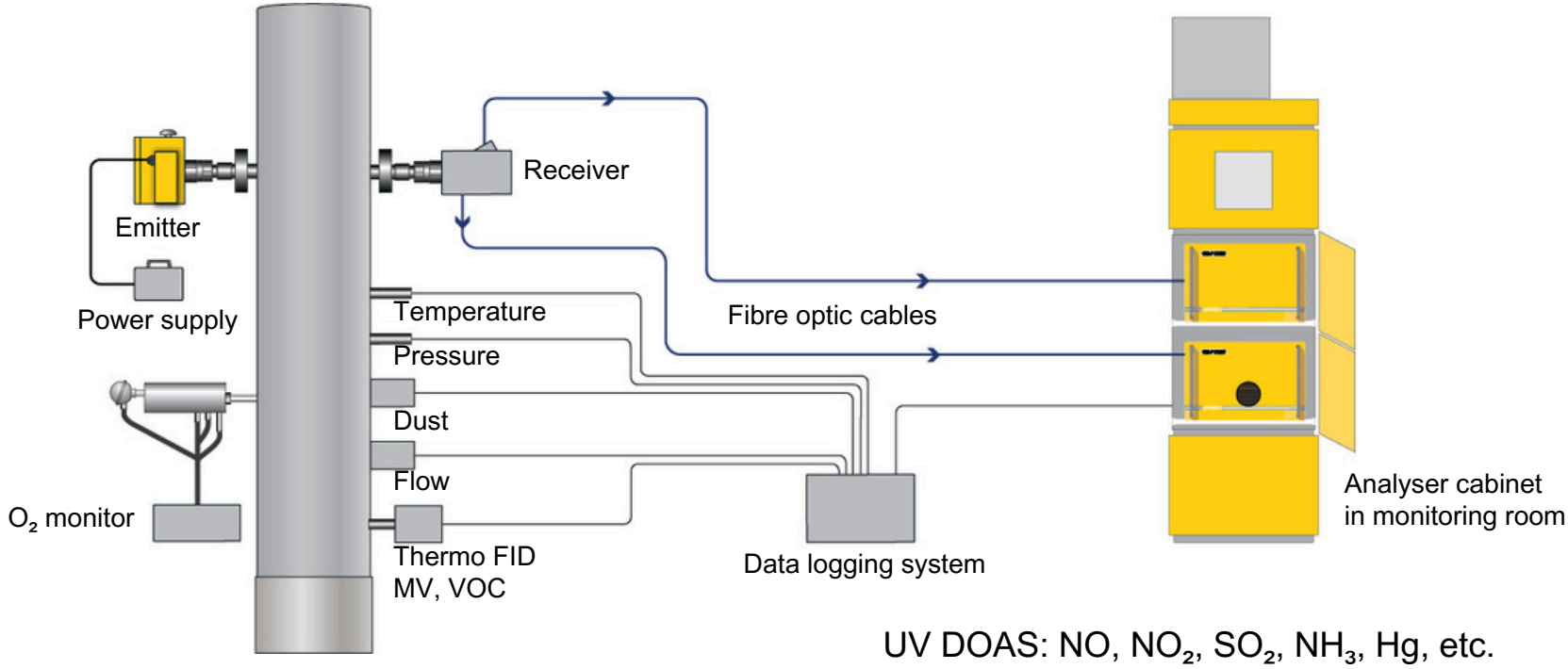






opsis.se

Click to edit the title text format



UV DOAS: NO, NO_2, SO_2, NH_3, Hg, etc.
IR DOAS: CO, CO_2, HCl, HF, H_2O, etc.

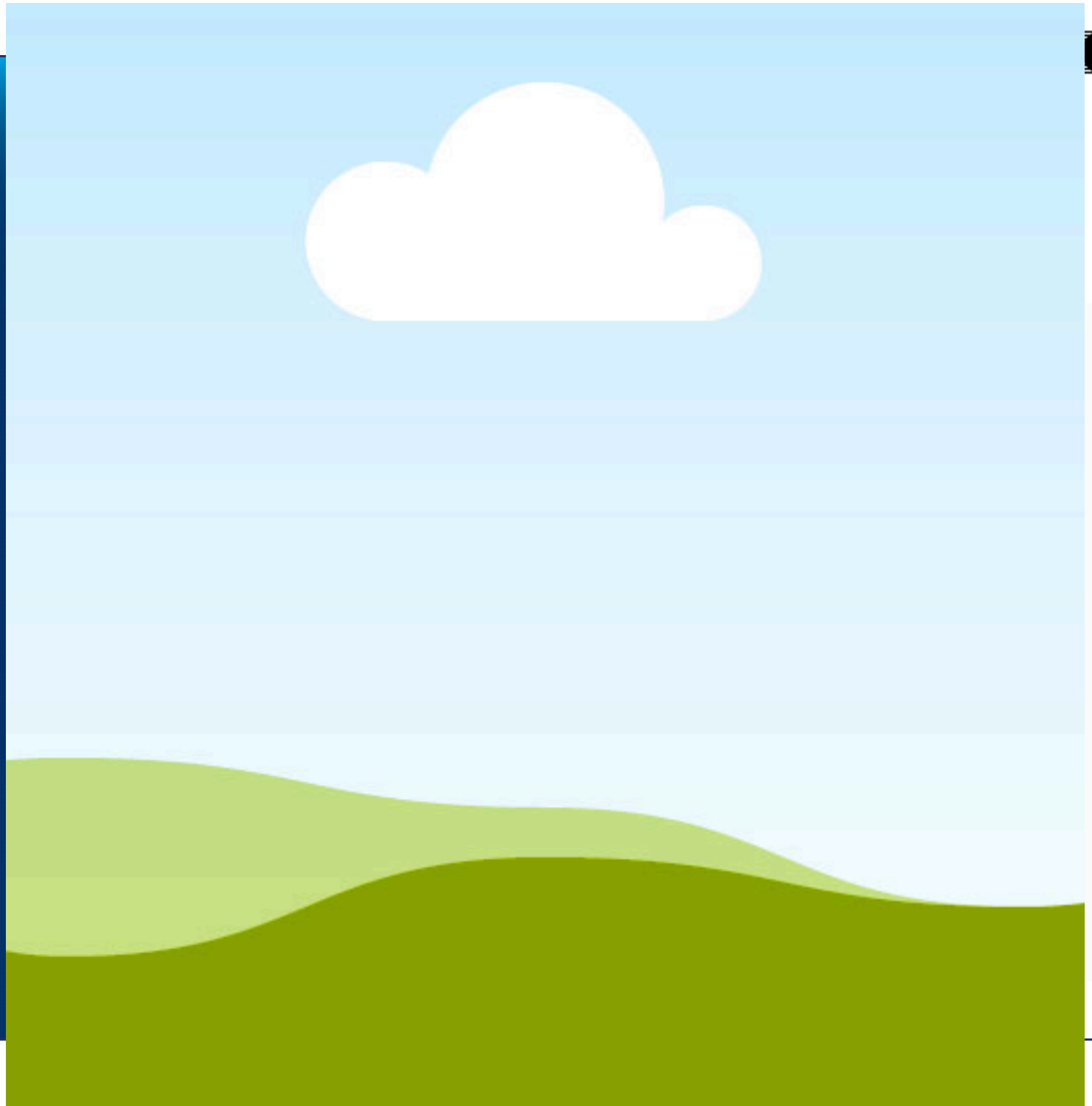
- Combination of UV and IR analysers allows measurements of hundreds of gas compounds !
- Non Sampling Monitoring Solution,for Maximum Reliability and Minimum of Maintenance

OPSIS Analyser has got Built in facility for Temperature /Pressure/Moisture/O2 Compensation.

Either real time measurement values or direct constant values can be given for Normalisation .
(As per CPCB Guide Lines)

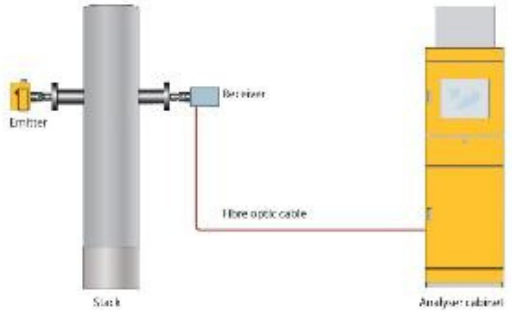
Click to edit the title text format

- **USEPA CERTIFICATE VERIFICATION ::: www.epa.gov/ttn/amtic/criteria.html**
- **TUV CERTIFICATE VERIFICATION:: https://www.certipedia.com/**
- **MCERTS CERTIFICATE VERIFICATION http://www.csagroupuk.org/services/mcerts/mcerts-product-certification/mcerts-certified-products/**
- **QAL1 Verification : http://www.qal1.de/en**

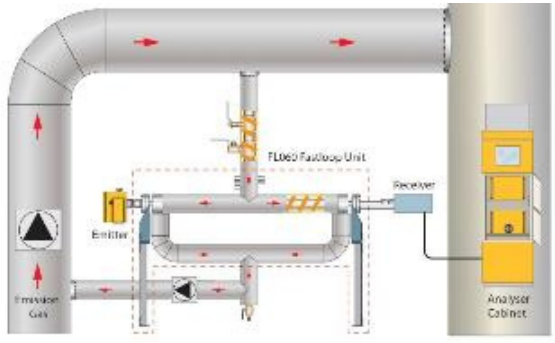


opsis.se

format



Cross-stack in-situ (~85%)



Fast-loop in-situ (~10%)

Hot/wet extractive (~5%)

Key points for Success

- ***Technical Presentation & Comparison***
- ***Worldwide & Local references***
- ***Site visit to Existing OPSIS installations***
- **Performance Letters**
- **2 years warranty with 3 years comprehensive CMC Cost Comparison**

CASE STUDIES		
	STACK	
	APPLICATION	COMPANY NAME
1	Aluminium Smelter	Hindalco , Hirakud
2	Cement plant - Holcim 1st installation	ACC, Coimbatore
3	Pet Coke Calciner	RAIN CII , Vizag
4	Waste Incinerator	Laxess Jhagadia
5	Cement Plant -Optical Multiplexing	Acc , Chandrapur
6	Copper Smelter	Birla Copper,Dahej
7	Waste Incinerator	Laxess Nagda
8	Cement Plant	ACC, Wadi
9	Chloro Alkali	Chemfab Alkalies
10	Paper Plant	Waste Coast Paper Mill,Dandeli
11	Cement Plant	Birla Corporation, Chittorgarh

aint Gobain Glass –Working Since 2000 (1st CEMs Installation in India)

Requirement :SO2,NOX,CO,HF,PM
Competition : Yokogowa , ABB, Emerson
Flue Gas Temp : 450 Degree C

Repeat Order
In 2004
SO2,NOX,CO,HF,PM

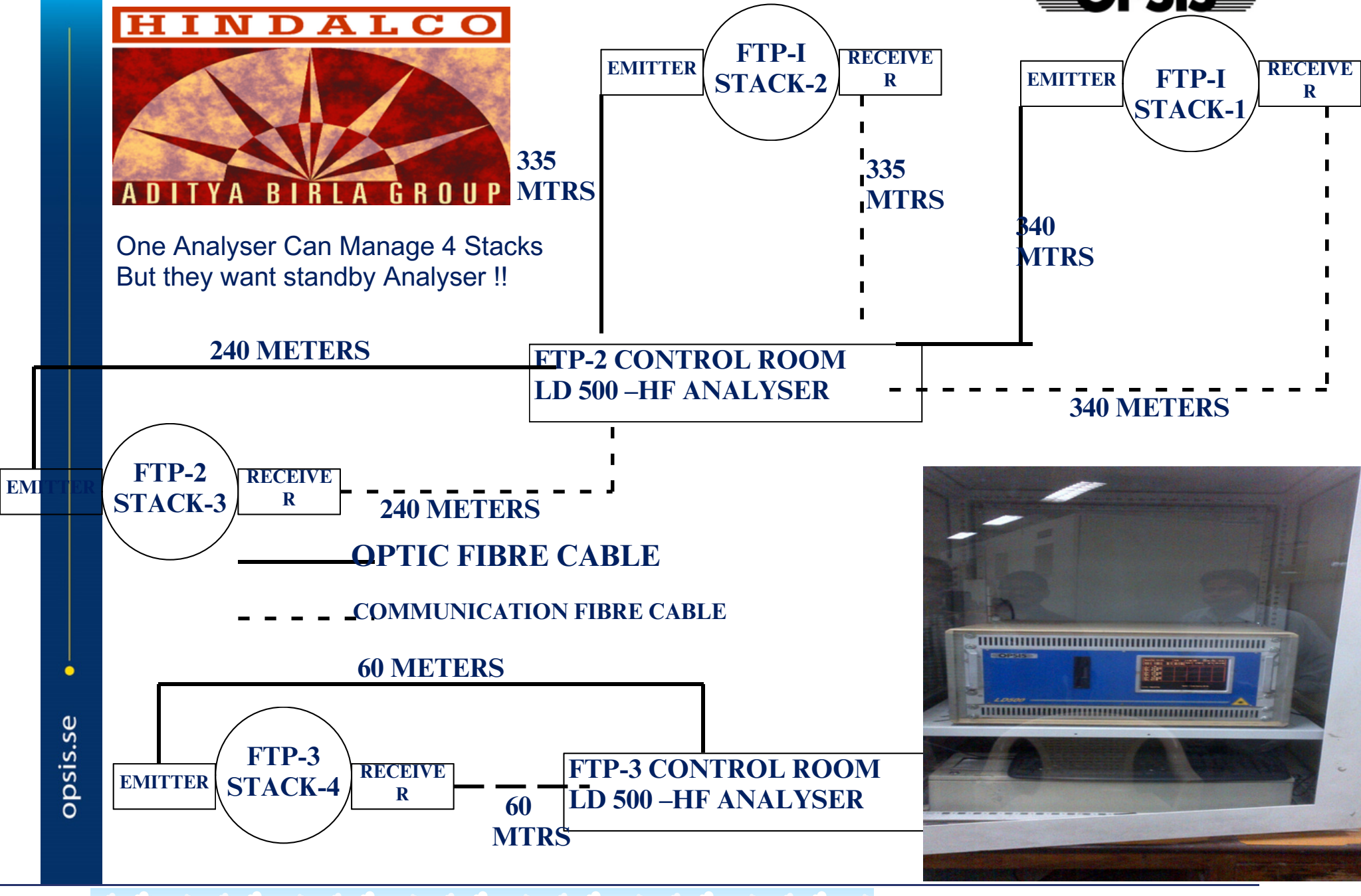
opsis.se

uminium Smelter – HF Monitoring – Woking Since 2008

HINDALCO

ADITYA BIRLA GROUP

One Analyser Can Manage 4 Stacks
But they want standby Analyser !!



opsis.se

Holcim Group Cement Plant ACC – Woking Since 2014

ACC Limited is part of the worldwide Holcim Group.

- **Competitor : Codel,Sick**
- **INSITU PROBE TYPE & INSITU CROSS STACK TYPE**
- **Customer had number issues with Extractive Analyser from SICK & Teledyne**

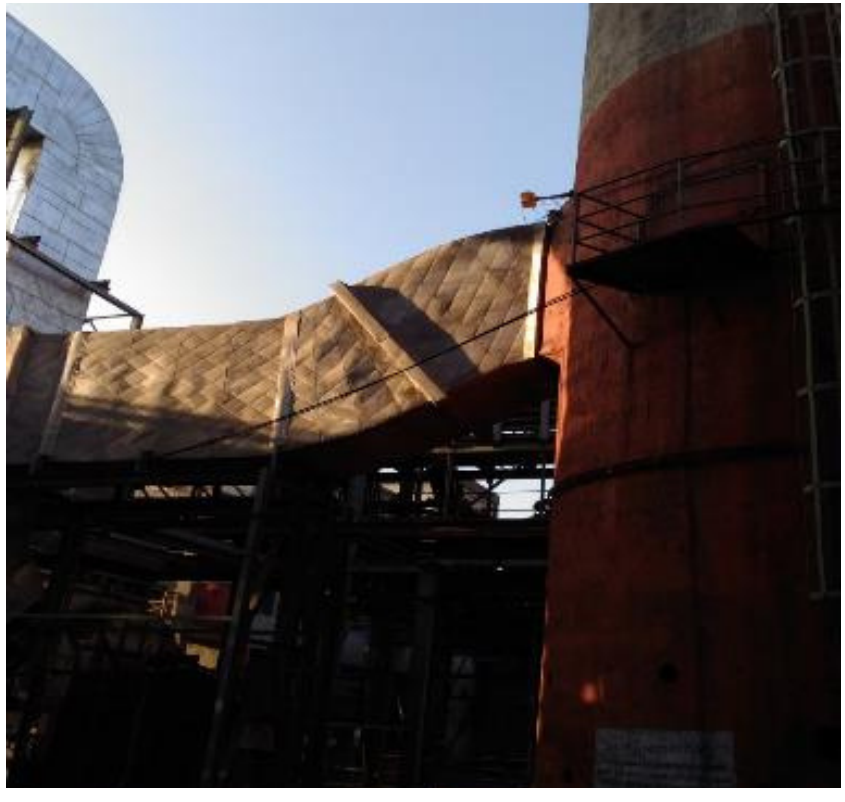
Since 2014 : EFFECTS OF 1ST HOLCIM INSTALLATION
1.ACC , Madukarai – CEMs—1 Stack (2013)
2. ACC, Wadi—CEMs– 3 stacks (2015)
3. ACC, Lakheri—CEMs—1 Stack (2017)
4. ACC, Tikaria– CEMs—1 Stack (2017)
5. ACC, Chandrapur– CEMs – 3 stacks(2018)
6. ACC – Lakheri – CAAQMs– 2nos.(2018)
(out of 17 ACC – Holcim Plants)
From Zero to 36% Market Share in Holcim Plants

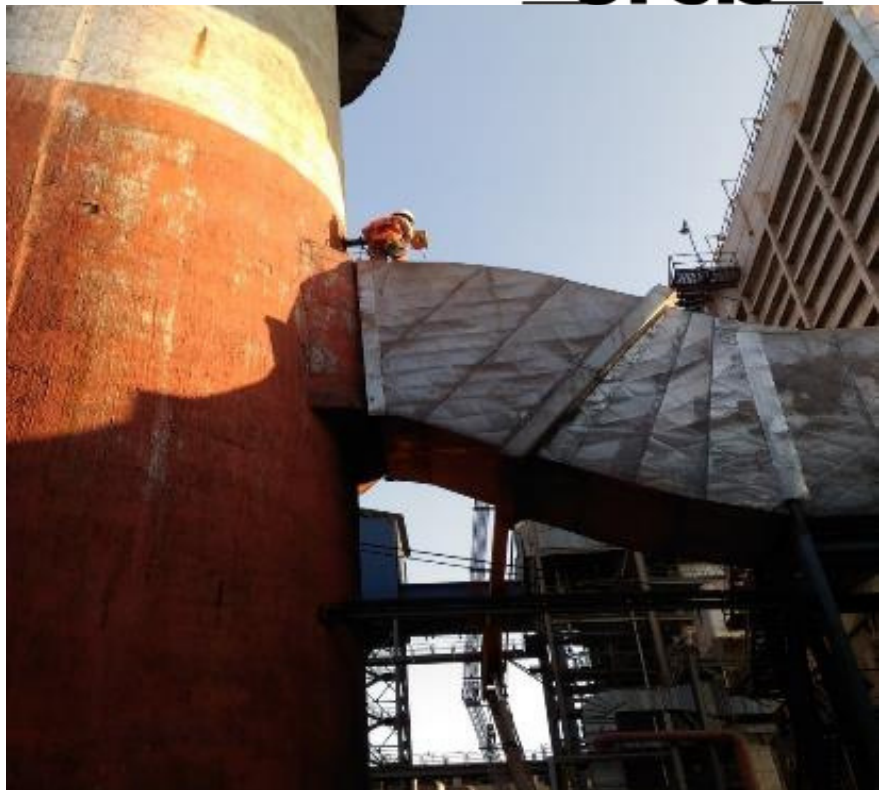
Holcim Group Cement Plant ACC – Woking Since 2014

ANLAYSER KEPT IN A STANDING A/C CABINET IN THE 1ST PLATFORM TO REDUCE THE OFC LENGTH (15 MTR HEIGHT FROM THE GROUND LEVEL)

opsis.se

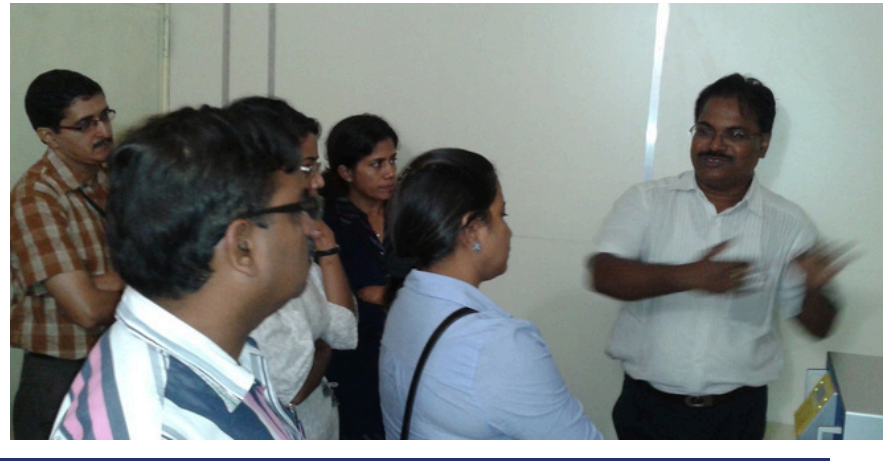
Click to edit the title text format





Educating Authorities on Technical Points

6 Boilers : 3 stacks
So2,Nox Monitoring
OFC 20 Mtrs
Shelter in Ground Floor
Stack Dia : 7 Mtrs



PETCOKE CALCINER PROCESS—Working Since 2006

RAIN CII CARBON LTD., **VISAKHPATNAM, INDIA**

- **CODEL SYSTEM WAS NOT WORKING SINCE INSTALLATION**
- **DOAS ANALYSER WAS EXPENSIVE & DUE TO BAD EXPERIENCE WITH CODEL, CLIENT WAS NOT CONVINCED FOR IN-SITU SYSTEM**
- **BAGGED DILUTION EXTRACTIVE SO2 ANALYSER IN NOV.2005 & INSTALLED AT STACK HEIGHT OF 40 MTS.**

TEMP: 70-80 Deg. C
SO2: 10 PPM

- AFTER 1 WEEK OF INSTALLATION, DILUTION EXTRACTIVE ANALYSER HAS STOPPED WORKING
- OPSIS ASKED US TO FIND OUT THE MOISTURE % IN FLUE GAS. IT WAS ABOVE 40% (BUT MENTIONED 20% IN ACL)
- OPSIS AGREED TO TAKE BACK THE DILUTION EXTRACTIVE ANALYSER AND TO SUPPLY DOAS–REFURBISH ANALYSER
- INSTALLED THE DOAS ANALYSER ON AUGUST 2006

AR602—SO2
UV SPECTROMETER

opsis.se

PETCOKE CALCINER PROCESS—Working Since 2018

SICK ANALYSER MODEL: S710 WAS NOT WORKING.

Highly Corrosive

- IF FGD Stopped :–
- SO2:: 6500 mg/m3
- H2SO4 FORMATION
- HARSH ENVIROMENT

opsis.se

anxess -Waste Incinertaor-Working Since 2016

- Measurements Gases :
  SO2, NO, NOx, HCL, CL2, HC, NH3 & CO.
- PROCESS DATA :

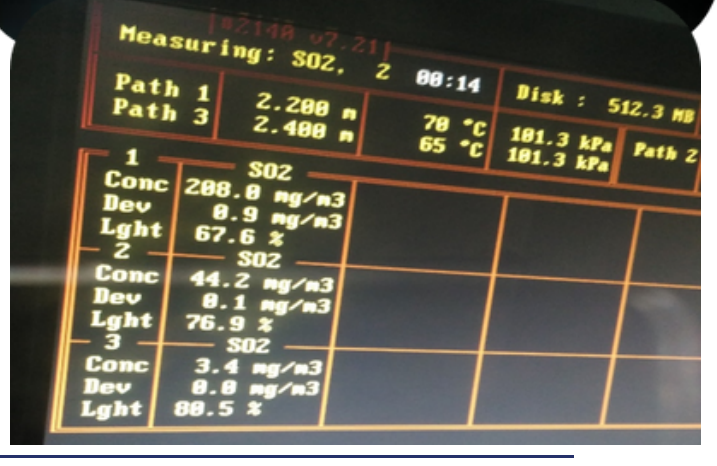
1. Temp. : Less than 100*C
2. Pressure : Normal
3. **Moisture : > 60%.**
4. Dust Level : Almost NIL.
5. Stack Material : FRP Stack.

Spent Money
Bought Extractive
Electro Chemical System
Learnt Lesson
Then after 1 year
Bought
OPSIS System
Then again after
1 Year Placed
Repeat Order.(New
Plant)

opsis.se

Birla Copper-Working Since 2016

- Requirement :for (for 14 stacks)
- COMPETITORS : Siemens—TDL for HF,NH3.
- Adage Automation – Extractive Analyser for SO2.
- CODEL– SO2.
- SICK --SO2,HF,NH3.
- Order :LD500- 2NOS. UV – 8NOS. Mercury- 1no.



Click to edit the title text format

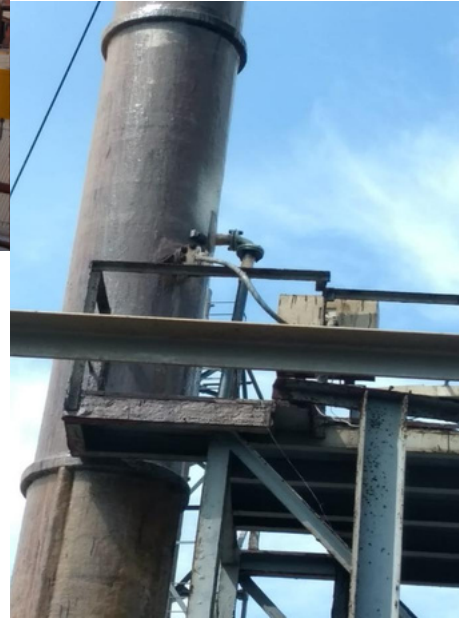
opsis.se

Real Challenge of Continuous Emissions Monitoring In Chlor Alkali Plants:Due to Small Dia Stacks (300 to 400 mm)

Competitions :

HCL Monitoring

- OPSIS
- SICK
- ABB
- ESA
- GASMET
- UNISEARCH
- HORIBA
- SIEMENS

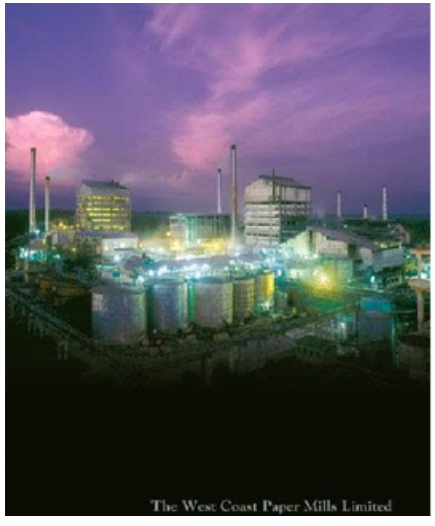


CL2 Monitoring

- OPSIS
- APPLIED ANALYTICS
- Local Players

opsis.se

Vest Coast Paper Mill -Working Since 2013



Site Visit

They want to monitor below parameters :

- **AQM Requirement :**
- **SO2,NO2,H2S,PM10,PM2.5 -- 3 AQM STATIONS**
- **H2S,PM10,PM2.5 -- 1 AQM STATION**

- **CEM Requirement : 6 STACKS**
- **FBC - 3 - STACK -- SO2,NOX**
- **FBC - 4 - STACK -- SO2,NOX**
- **RLK-1 - STACK -- SO2,NOX**
- **RLK-2 - STACK -- SO2,NOX**
- **CRB - 1 - STACK -- SO2,NOX**
- **CRB 1&2 - STACK -- H2S**

opsis.se




POWER PLANT INSTALLATION
(8.5 MTR DIA OF POWER STACK/50MTR HEIGHT)

4 KILN STACKS WITH THREE ANALYZERS

OPSIS Analyser has got Built in facility for Temperature /Pressure/Moisture/O2 Compensation.
Either real time measurement values or direct constant values can be given for Normalisation . (As per Regulatory Requirement)

Flue Gas From 15 Mtr Height of Stack with 45% Moisture

With Heated Insulation Issue sorted out

Gas Authority of India Limited : Refinery Application

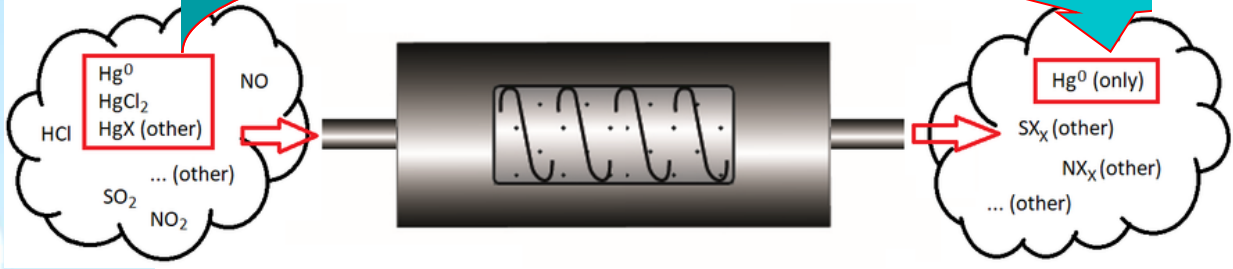
Pre Installation stage of
2 inch Pipe from
Hazardous Area to safe area

Blower to transport the Flue gas from 150,180,170 mtrs

Lessons Learnt from GAIL Installation

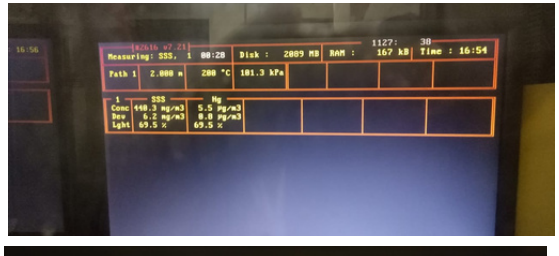
- In Refineries CEMs installation is challenging due to Hazardous area restrictions.
- In Hazardous application also we can install OPSIS CEMs by bringing the Flue Gas to a safe area.
- Efficient Operation of Fast Loop (upto 180 mtrs) with suitable Blower & VFD technology.
- Cross road Fast Loop installation from Hazardous area to safe area.
- With Technical strength, How to win a project with a single bidder process.

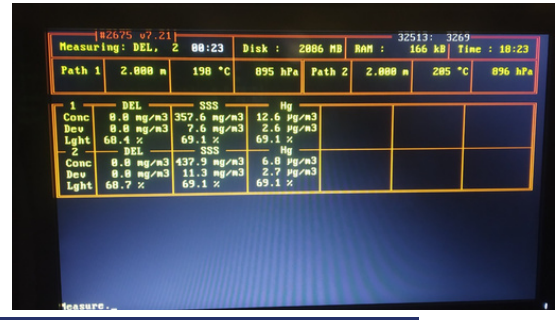
Total Mercury Monitoring in Power Plants (India)



- All Hg atoms end up as Hg⁰, whether atomic (Hg⁰) or in compounds (e.g. $HgCl_2$)
- Other reactions with non-Hg compounds might also happen, although a non-issue for the THg conversion to Hg⁰

In India : Total mercury Monitoring References :
1.Birla Copper, Dahej : 1No.
2.Utkal Alumina , Rayagada, Odisha ; 3 Nos
3. Nalco Angul – 2Nos.





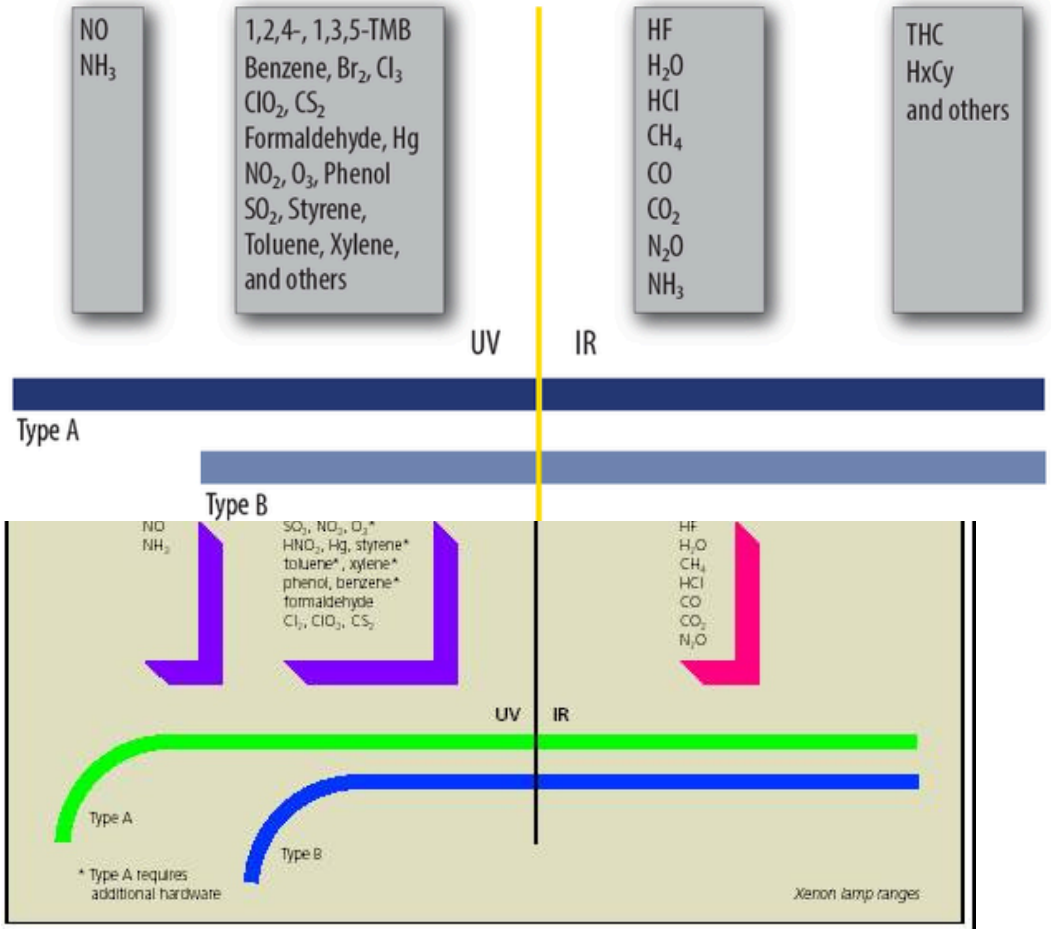
opsis.se

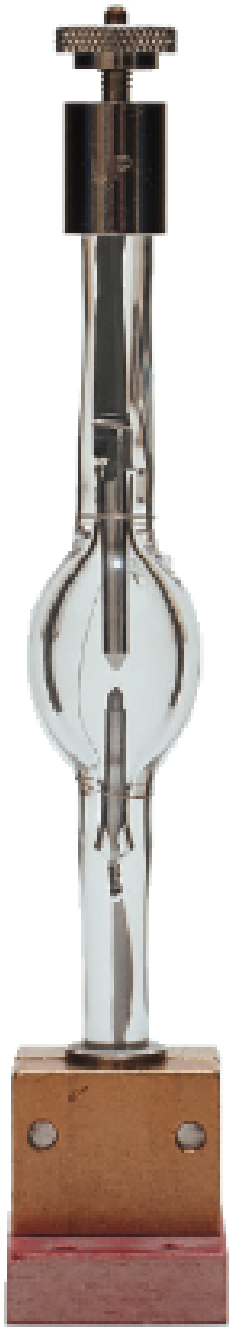
Click to edit the title text format

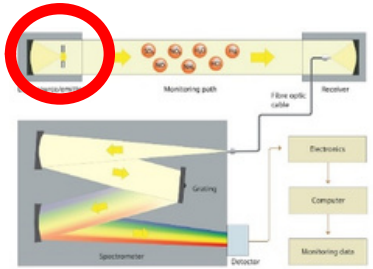
Click to edit the title text format

Click to edit the title text format

- For UV and IR DOAS systems
- High pressure arc lamp
- Two versions; Type A and Type B
- Type A for deep UV, generates ozone







Technical Specifications

opsis.se

Click to edit the title text format

SO2
NO
NO2
NOX
NH3
Total Hg +UV Gases

The IR-DOAS Gas Analyser :AR650

CO
CO2
H2O
CH4
++
IR Gases

The Laser-Diode Gas Analyser :LD500

CO_2, H_2S, NH_3, HF, HCl, H_2O, CH_4, CO, O_2 and temperature

Click to edit the title text format

In India : Total mercury Monitoring :

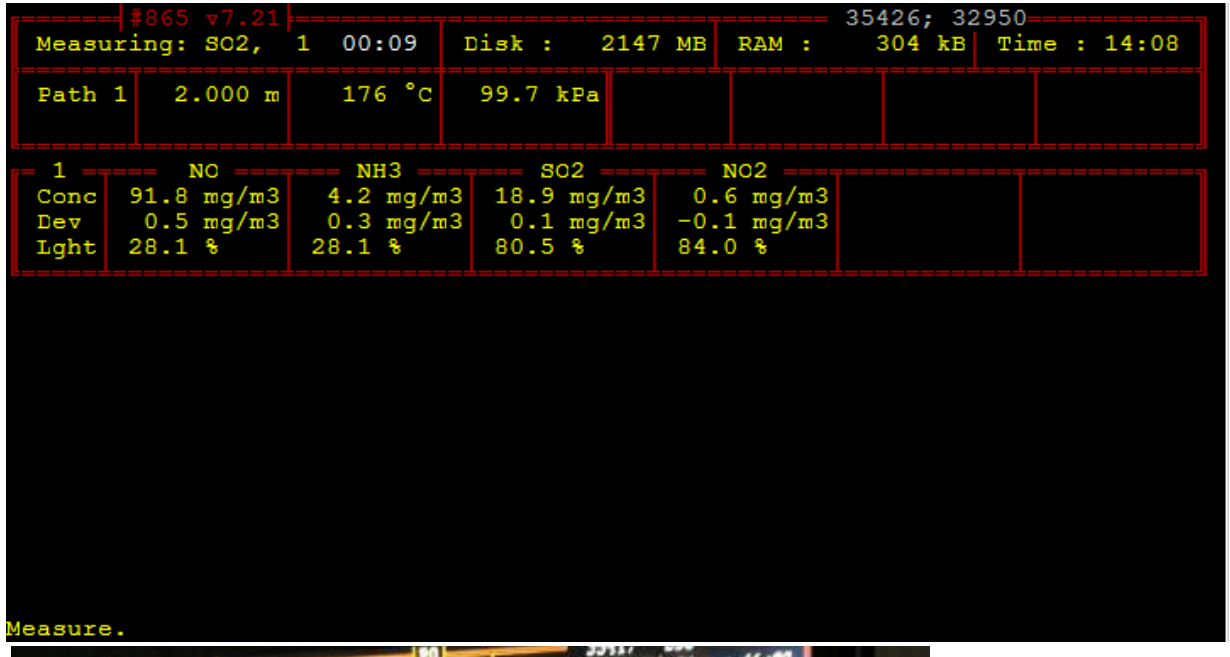
1.Birla Copper, Dahej : 1No.

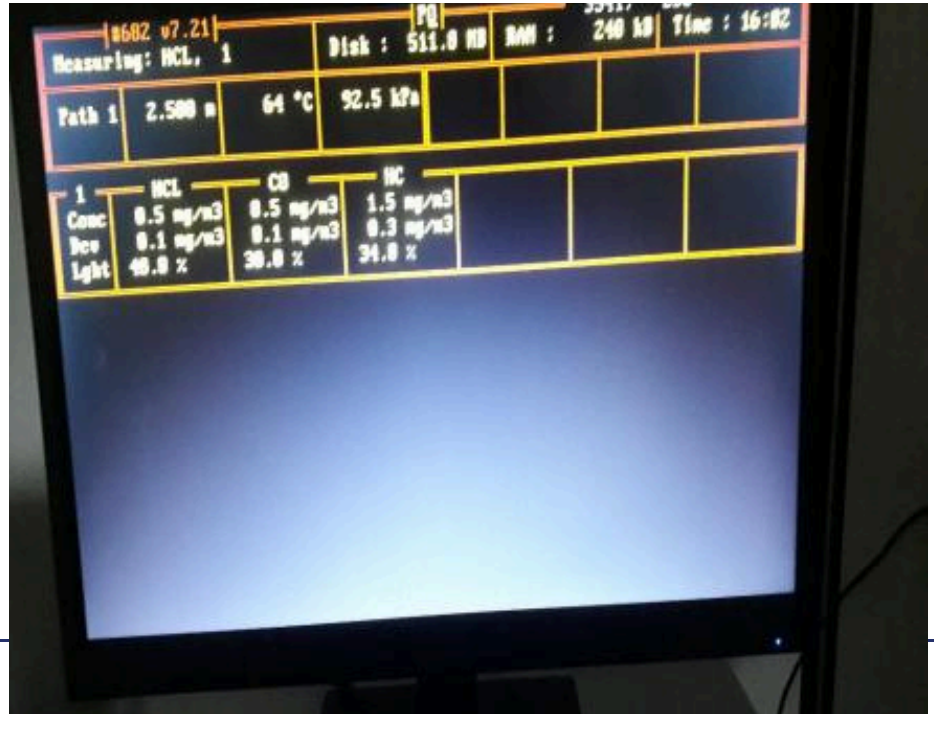
2.Utkal Alumina , Rayagada, Odisha ; 3 Nos

3. Nalco Angul – 2Nos.

Client	Country	Application	Year	Gases Monitored
Austral Brick, WA	Australia	Brick	2005	NO,NO2,SO2,CO,HCL,H2O,HG
IPALLE 7	Belgium	Waste Incinerator	2012	SO2, NO, NO2, NH3, Hg, CO, HCl
Kommune Kemi 1	Denmark	Waste Incinerator	2007	HCL,CH4,CO2,HF, NO, NO2, HG, SO2, Br2, I2
Kommune Kemi 2	Denmark	Waste Incinerator	2007	HCL,CH4,CO2,HF, NO, NO2, HG, SO2, Br2, I2
Kommune Kemi 3	Denmark	Waste Incinerator	2007	HCL,CH4,CO2,HF, NO, NO2, HG, SO2, Br2, I2
DONG, Horsens KVV 1	Denmark	Waste Incinerator	2005	HCl,H2O,CO,HF,CO2,CH4, NO, NO2, SO2, HG, NH3
DONG, Horsens KVV 2	Denmark	Waste Incinerator	2007	HCl,H2O,CO,HF,CO2,CH4, NO, NO2, SO2, HG, NH3
Lafarge, Rezina	Moldavia	Cement	2011	SO2, NO, NO2, HCl, CO, HF, CO2, NH3, H2O, Hg
EKO Hybres, Rzeszow	Poland	Waste Incinerator	2011	SO2. NO, NO2, HCl,Hg,CO, H2O, NH3
Köping Värme	Sweden	Waste	1996	NO,NO2,SO2,CO,HCL,H2O,HG
Holcim, Alesd	Romania	Cement	2002	SO2, NO, NO2, HCl, CO, HF, CO2, NH3, H2O, Ben, Hg
Holcim, Turda	Romania	Cement	2003	SO2, NO, NO2, HCl, CO, HF, CO2, NH3, H2O, Hg
Cementos Alfa	Spain	Cement	2002	SO2,NO,NO2, CO,HCL, HF, NH3, H2O, Hg
Uniland 1	Spain	Cement	2005	SO2,NO,NO2, CO,HCL, HF, H2O, Hg
Uniland 2	Spain	Cement	2005	SO2,NO,NO2, CO,HCL, HF, H2O, Hg
Uniland 3	Spain	Cement	2005	SO2,NO,NO2, CO,HCL, HF, H2O, Hg
Uniland 4	Spain	Cement	2005	SO2,NO,NO2, CO,HCL, HF, H2O, Hg
Holcim, Campulung 1	Romania	Cement	2005	SO2, NO, NO2, HCl, CO, HF, CO2, NH3, H2O, Ben, Hg
Holcim, Campulung 2	Romania	Cement	2005	SO2, NO, NO2, HCl, CO, HF, CO2, NH3, H2O, Ben, Hg
Lafarge, Hoghiz	Romania	Cement	2005	SO2, NO, NO2, HCl, CO, HF, CO2, NH3, H2O, Hg
Lafarge, Medgidia 1	Romania	Cement	2006	SO2, NO, NO2, HCl, CO, HF, CO2, NH3, H2O, Hg
Lafarge, Medgidia 2	Romania	Cement	2006	SO2, NO, NO2, HCl, CO, HF, CO2, NH3, H2O, Hg
Fortum Värme, Avesta 1	Sweden	Waste Incinerator	2004	NO, NH3, NO2, SO2, Hg, H2O, HCl, CO,CH4
Fortum Värme, Avesta 2	Sweden	Waste Incinerator	2004	NO, NH3, NO2, SO2, Hg, H2O, HCl, CO,CH4
Fortum Värme, Bristaverket	Sweden	Waste Incinerator	2004	NO, NH3, NO2, SO2, Hg, H2O, HCl, CO,CH4, N2O
AVEA,Leverkusen Line 1	Germany	Waste Incinerator	2013	NO,NO2,SO2,CO, HCL,HF, H2O,Hgtot
AVEA,Leverkusen Line 2	Germany	Waste Incinerator	2013	NO,NO2,SO2,CO, HCL,HF, H2O,Hgtot
AVEA,Leverkusen Line 3	Germany	Waste Incinerator	2013	NO,NO2,SO2,CO, HCL,HF, H2O,Hgtot
AWE Berrenrath	Germany	Powerplant	2013	Hgtot
AWE Berrenrath	Germany	Powerplant	2013	Hgtot
Studsvik Radwaste	Sweden	Waste Incinerators	2012	Hgtot
Fortum Värme , Högdalenverket	Sweden	Waste Incinerators	2013	Hgtot

Measurement screen





Conc = an averaged value of thousands of measurements

Dev = standard deviation of concentration values

Light = a light intensity value of each gas

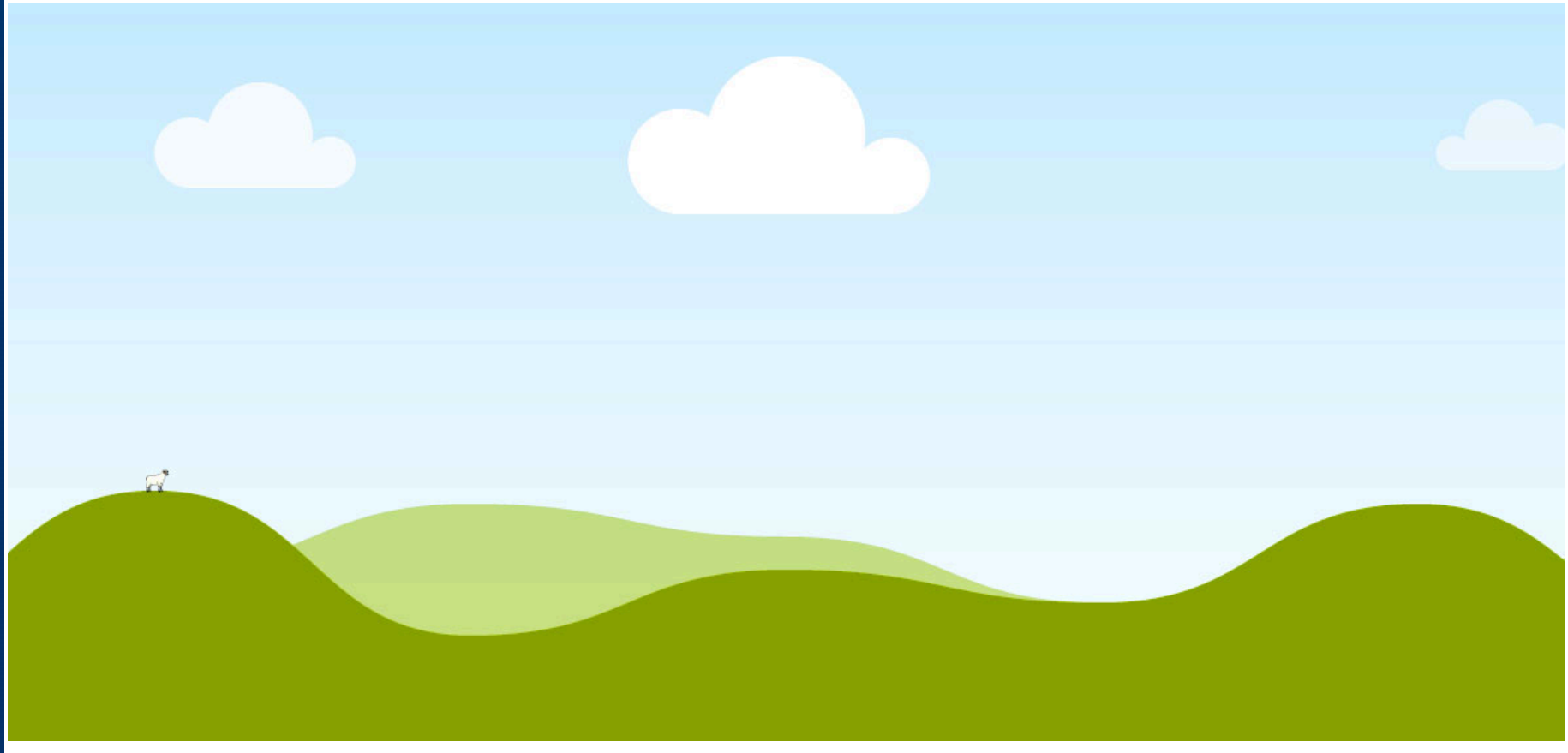
TESTS AND APPROVALS

Click to edit the title text format

1	**U.S.--E.P.A.---ENVIRONMENTAL PROTECTION AGENCY ,U.S.A.**
2	**TUV ,GERMANY**
3	**MCERTS -SIRA CETRIFICATION SERVICES, U.K.**
4	ENVIRONMENTAL MANAGEMENT CORPORATION,KOREA
5	NATA SCOPE OF ACCREDIATION, AUSTRALIA
6	PATTERN APPROVAL,CHINA
7	ALL-UNION METEROLOGY REASEARCH INSTITUTE,MOSCOW
8	BUREAU VERITAS, U.K.
9	UNDERWRITERS LABORATORIES INC,U.S.A.
10	C.N.R.INSTITUTO INQUINAMENTO ATMOSFERICO,ROME,ITALY
11	INERIS,FRANCE
12	ENVIRONMENT INSTITUTE,JOINT REASEARCH CENTRE,(ISPRA) ITALY
13	EMC,SWEDEN
14	ROMANIAN BEAURE OF LEGAL METROLOGY ,ROMANIA
15	UMEG ,GERMANY
16	METROLOGY INSTITUTE,BULGARIA
17	RUSSIAN APPROVAL AGENCY,RUSSIA
18	LATVIAN HYDROMETROLOGICAL AGENCY,LATVIA
19	BELARUS APPROVAL AGENCY --REPUBLIC OF BELARUS

CALIBRATION

Click to edit the title text format



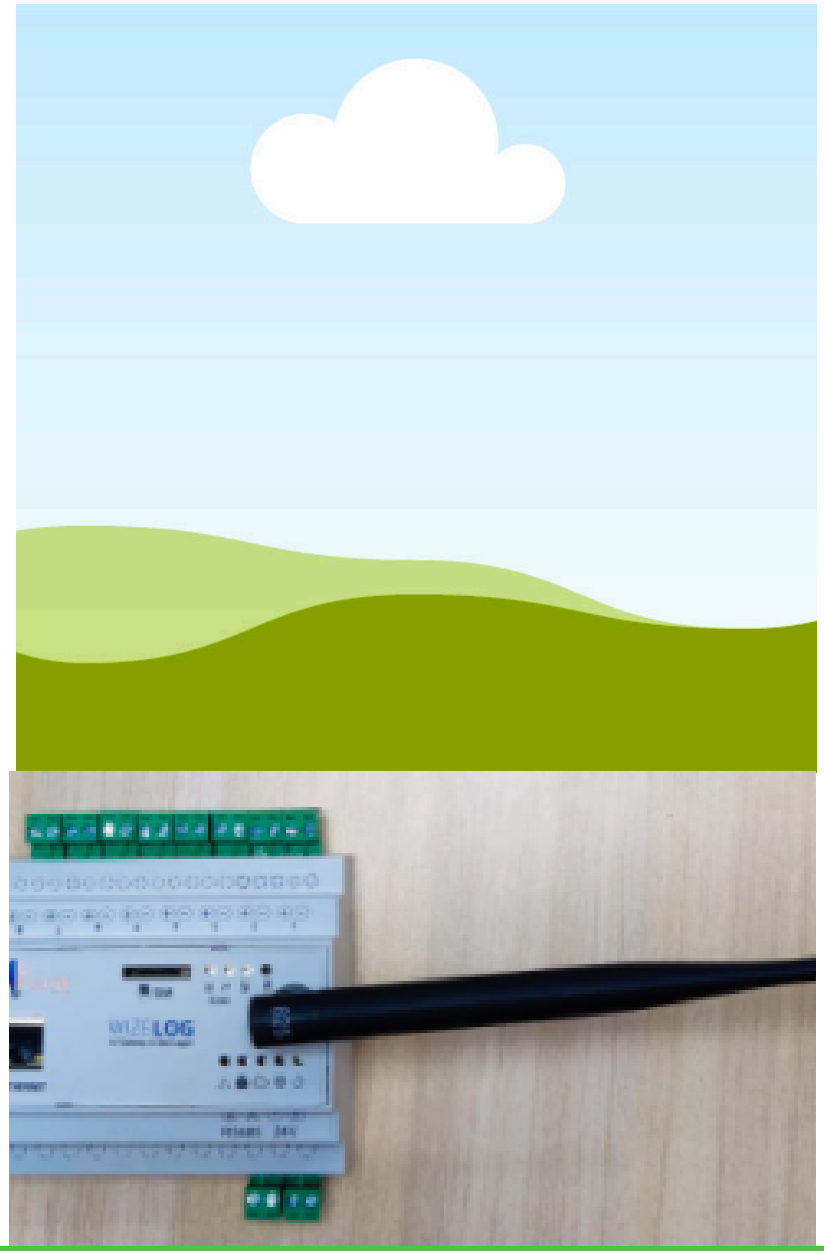
CONNECTIVITY TO STATE PCB & CPCB

opsis.se

Click to edit the title text format

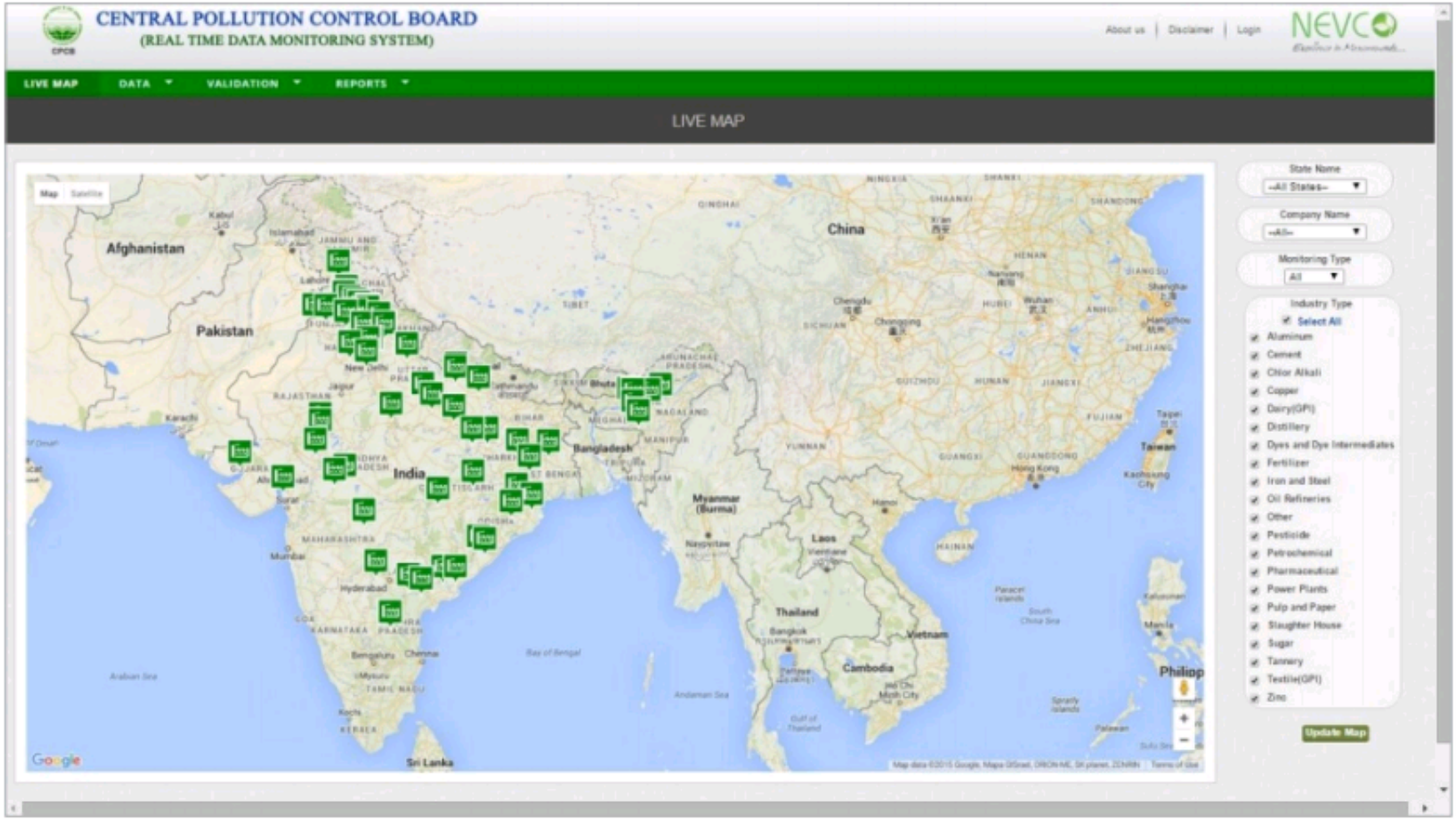
WT 256: Transfers Real Time Data to CPCB/SPCB/ANY FTP

M2M Device for Data Transfer of Any Application as Environmental/ Solar/ Flow/ Cold Storage/ Energy & Hydro

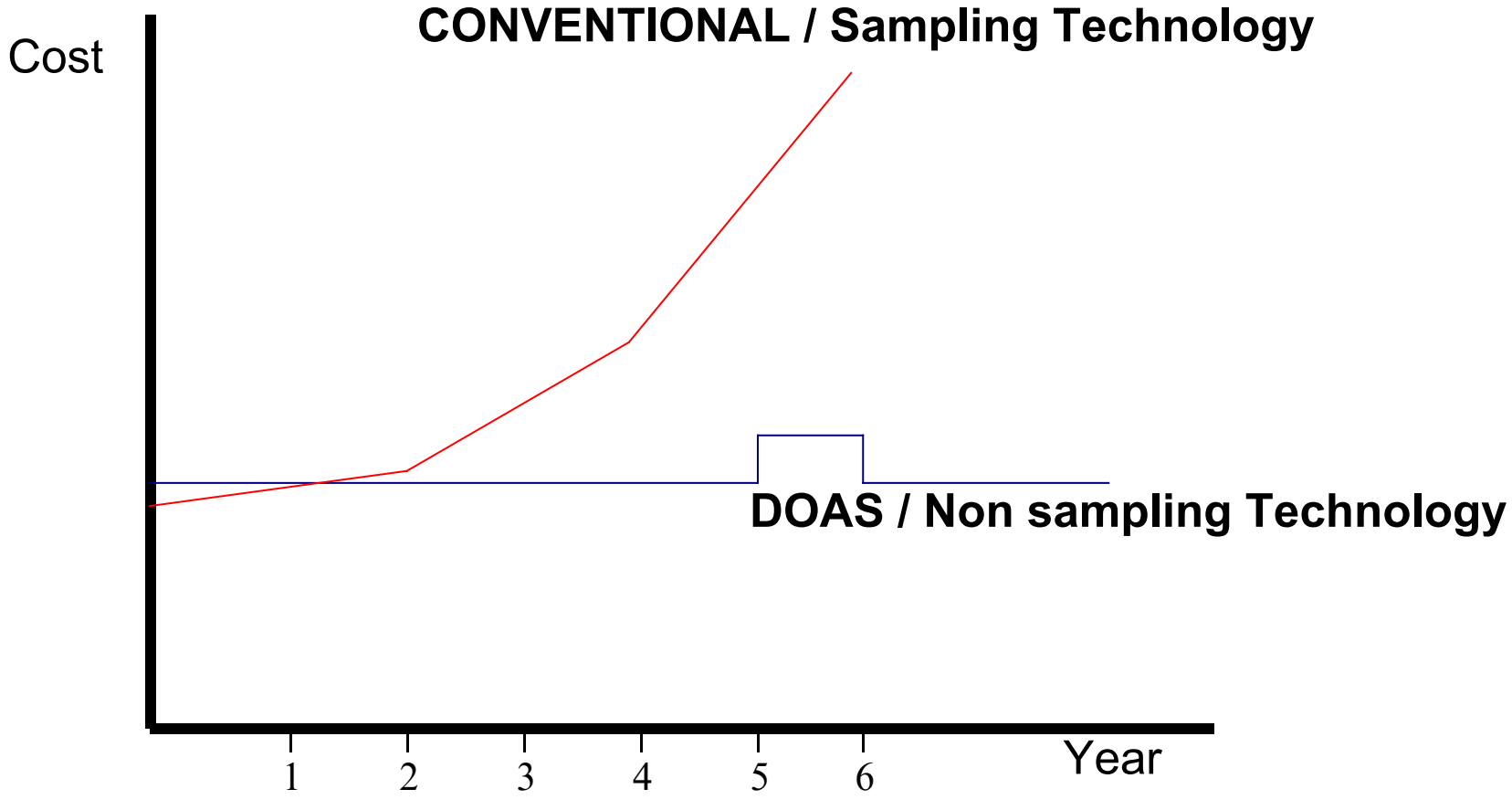


Click to edit the title text format

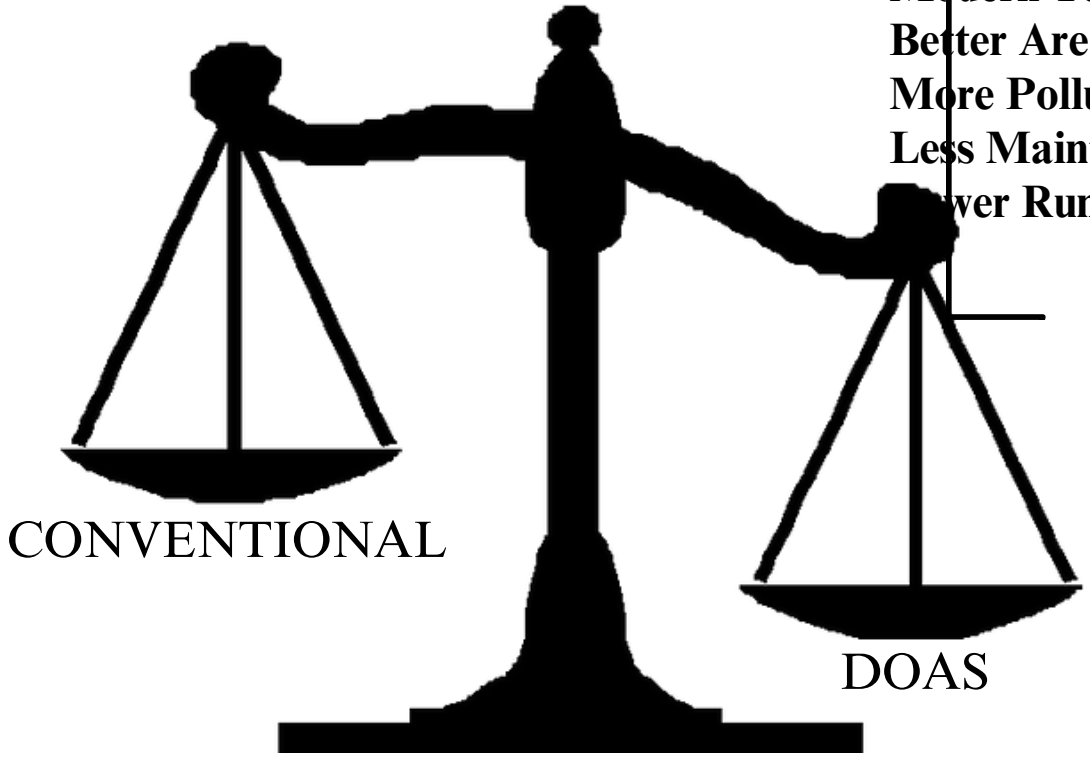
CENTRAL POLLUTION CONTROL BOARD (REAL TIME DATA MONITORING SYSTEM)
www.nevcodata.com



Click to edit the title text format



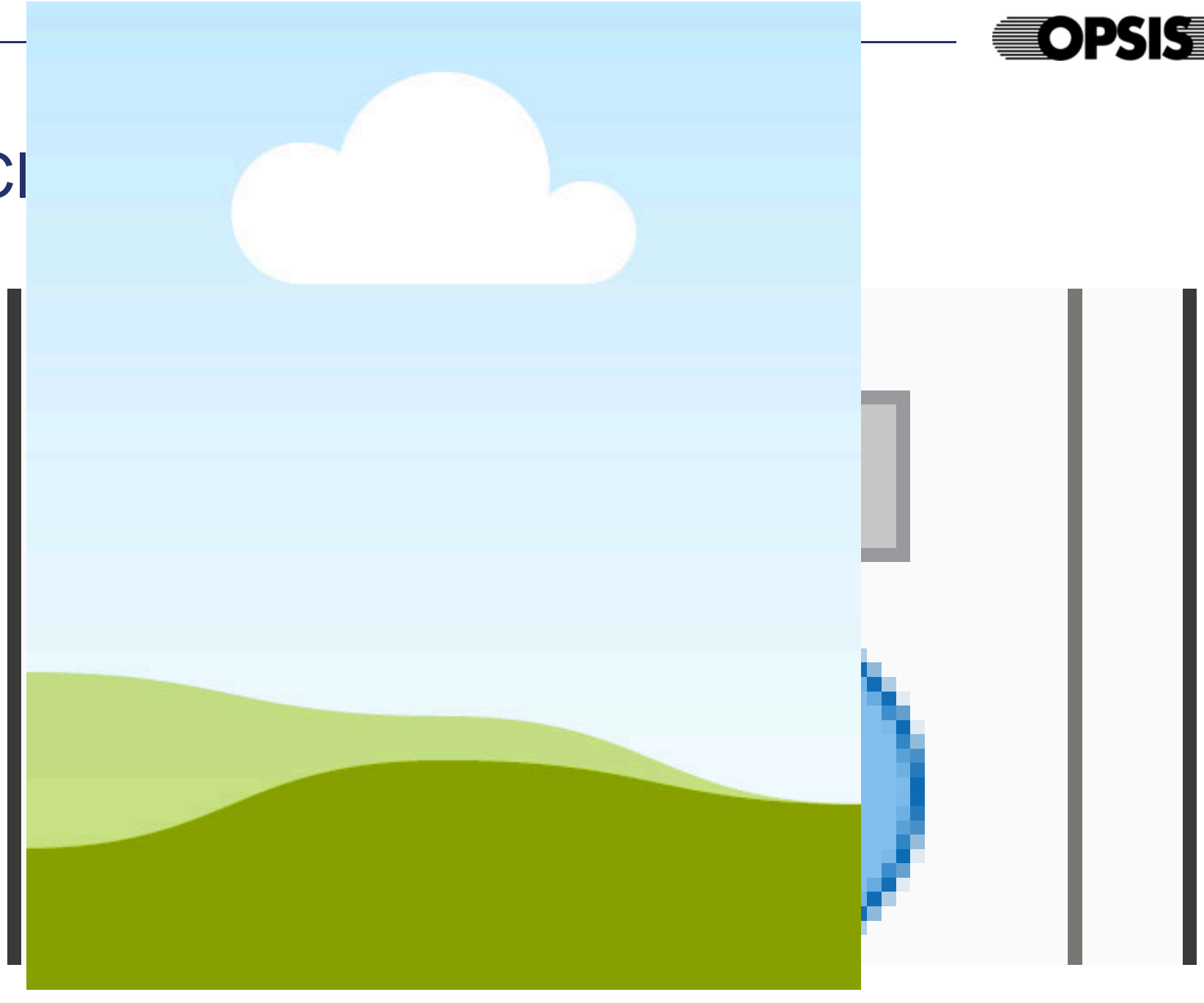
Click to edit the title text format



Modern Technology
Better Area Coverage
More Pollutants Monitored
Less Maintenance
wer Running Costs

opsis.se

Cl



opsis.se

NEVCO RANGE OF PRODUCTS

EMMISSION MONITORING SYSTEM	PORTABLE FLUE GAS ANALYZER
EFFLUENT WATER QUALITY SYSTEMS	FLOW METERS (LIQUID, GAS, STEAM)
AUTOMATIC WEATHER STATION	HYDROGEN PURITY ANALYZERS
STACK DUST & FLOW MONITORING SYSTEM	MANOMETERS
ONLINE NEUTRON ACTIVATION COAL ANALYZER	PITOT TUBE
ONLINE COAL ASH ANALYZER	ZIRCONIA O2 ANALYSER
ONLINE MOISTURE ANALYZER	NOISE LEVEL MONITOR
ONLINE CROSS BELT ANALYZER	INDOOR AIR QUALITY METERS
REAL TIME DATA TRANSMISSION TO CPCB & SPCB	IR THERMOMETERS AND COUNT ON……..

STACK
SPM ANALYSER

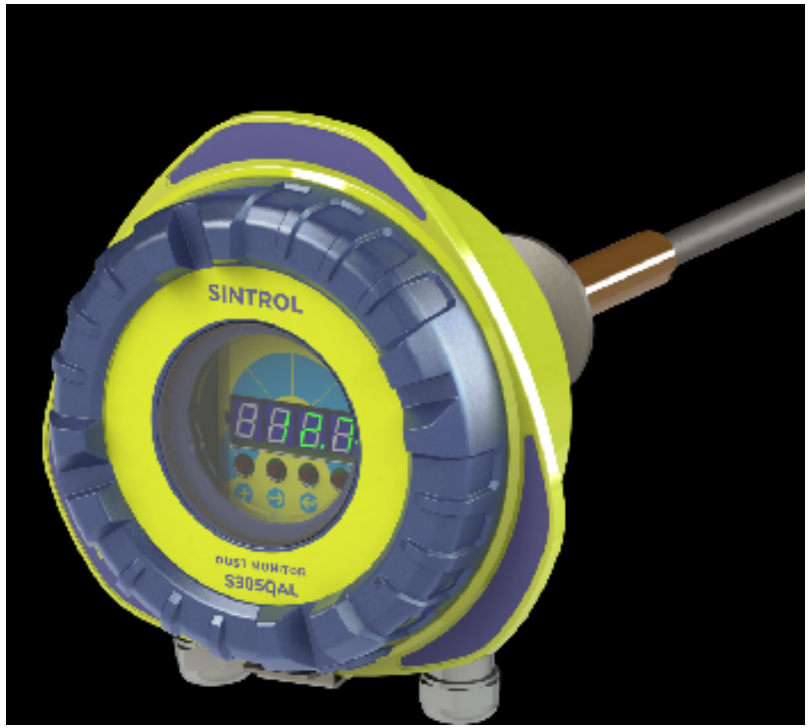
opsis.se

Click to edit the title text format

QAL 1 Certified PM Emission monitoring in chimney/ Stack in any Industry as Cement, Power, Steel, Distillery, and Others.

Filter Bag Leak Detection

Opacity Monitor



WATER QUALITY MONITORING

opsis.se

Waste Water Monitoring and Control

Click to edit the title text format

THE FOLLOWING PARAMETERS ARE TO BE MEASURED BY STPS AS PER CPCB NOTIFICATION.

pH, BOD, COD, TSS, NH4-N,
N-total,
Fecal Coliform and PO4-P

OPSIS

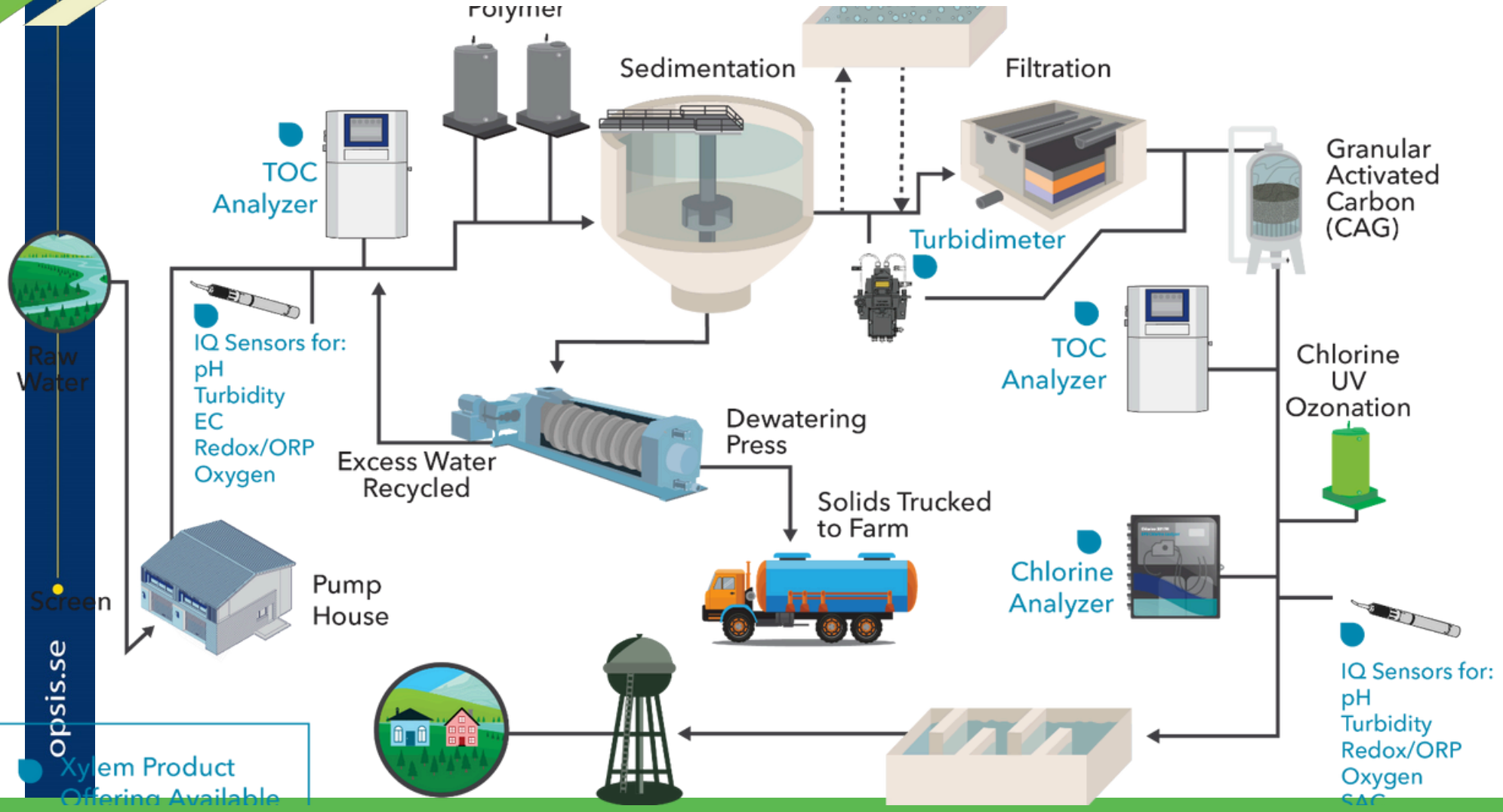
NEVCO

Excellence in Measurements.

Drinking water measurement

MULTIPARAMETER PANELS, CONVERTERS

Overview of Drinking Water



OPSIS NEVCO

Excellence in Measurements.

Multi-parameter

Individual parameters (pH/Redox, O2, EC, Cl)

Panel for chlorine

IQ Sensor Net

Singlewave-length Sensors

Turbidity Analyzer

Chlorine Analyzer

- Can Be Used With Non-Standard Channels And Weirs.

ELECTROMAGNETIC FLOW METER

FEATURES:

- MagFlux Electromagnetic Flow Meters Deliver Extremely Stable And Accurate Flow Measurements In Pressurized Closed Pipe Systems, Thereby Decreasing Water Waste And Eliminating Non-Revenue Water Loss.
- The Modular Design Is Versatile. MJK's Sensors And Converters Cover A Broad Range Of Applications And Can Be Combined To Meet Specific Requirements.
- Our Instruments Are Designed For Flexibility And Can Be Used In Many Types Of Flow Measuring In Conductive Liquid Applications.
- MagFlux Flowmeters, Converters And Displays Include A Technically Advanced Enclosure Made Of Glass-Reinforced Polycarbonate, Offering Maximum Protection Against Harsh Industrial Environments.
- You Need A Straight Inflow Pipe Which Is Only 3 X The Diameter And A Straight Outflow Pipe Which Is Only Twice The Diameter Of The Flow Meter. For Smaller Dimensions, The Sensor Itself — To A Great Extent Meets

Click to edit the title text format

- Compressed Air Flow Meters etc.

FEATURES:

- No leakage points, No pipe taps or spools
- Installation or retrofit on existing piping
- Low cost of installation, No pressure drop
- Zero maintenance - No gels, greases or coupling compounds
  For Fixed type Flow Meter, we provide permanent VITON coupling pad result into Zero Maintenance. For portable meter, we provide Gel as it is Spot measurement.

Click to edit the title text format

Thickness Tester

Sound Level Meter

Gas Testers

Pilot Tubes

Distance Meter

Flow Meters

VOC Analyser

Tachometer

Anemometer

Environmental Meter

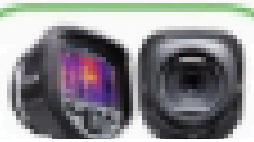
Flue Gas Analysers

Borescopes

Clamp Meter

Zerconia O2 Analyser

Personal Gas Detector



O2 0-21%, CO 0-10,000ppm (H2 compensated), CO 0-10%, HC 0-5,000ppm &

CO2 0-20% as standard

- Unique 8 gas FGA
- NO, NO2, SO2 & H2S options

KANE 258

- Flue Gas Analyser with innovative direct CO, O2 & CO sensor purge protection
- Capable of calculating CO2, CO/CO2 differential temperature & combustion efficiency
- Ideal for a appliances using a variety of fuels such as natural gas, propane or light oil

KANE458s

- KANE458s Flue Gas Analyser with direct CO, CO2 & CO sensor protection
- Latest upgradeable sensor technology

Click to edit the title text format

und Pollution is a big issue and
ee areas where sound can be
nitored and Controlled is

arious areas in smart city

G sets sound monitoring and control

Monitoring and checking in all industri

Click to edit the title text format

(see rule 3(1) and 4(1))

Ambient Air Quality Standards in respect of Noise

Area Code	Category of Area / Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

Note:- 1. Day time shall mean from 6.00 a.m. to 10.00 p.m.
2. Night time shall mean from 10.00 p.m. to 6.00 a.m.

Contd

Click to edit the title text format

instrument and are certified NSIC manufacturing unit.

NEVCO
Excellence in Measurements...

Outdoor Fixed Sound Level Measuring Instrument

Class 1

RSMS-01 (Remote Sound Monitoring System) – Made in India

PRODUCT OVERVIEW

The simple outdoor unit has a large measurement range and good stability. It has a wide range of applications, such as automatic monitoring of urban environmental noise, online monitoring of noise pollution sources (such as construction sites, factory boundaries, road vehicles, etc.), automatic collection and transmission of noise data, and it has the characteristics of all-weather monitoring and no need for people to be on duty.

The whole unit is small in size, easy to move, install and maintain, and has high reliability. It is suitable for use in environmental protection, factories, enterprises, scientific research institutes and other departments.

Main features

- Auto power function when connected to an external power;
- Real-time data transmission to cloud server for data analysis in Graph, Tabular, Export to Excel
- Small size, easy installation;

Technical Specifications:

Specialty	Precision pulse
Microphone	AWA14425
Frequency Weighting	A, C, Z
Time Weighting	F, S, I, Peak
Frequency Range	10 Hz – 20 kHz
Meas. Range	25dB(A)~140dB(A)
Self-generated Noise	<18 dBA
Display	128 × 64 OLED
Outputs	AC, DC, RS 232
Sampling Frequency	48kHz
Main parameters of measurement	Lp, Lmax, Lpeak
Over limit indication	YES, Limits can be settled
Power Supply	Battery 4×LR 6 or Lithium battery
Working Temperature	-15 ℃~ 50 ℃
Executive standard	IEC 61672:2013 Class 1 (Certified)

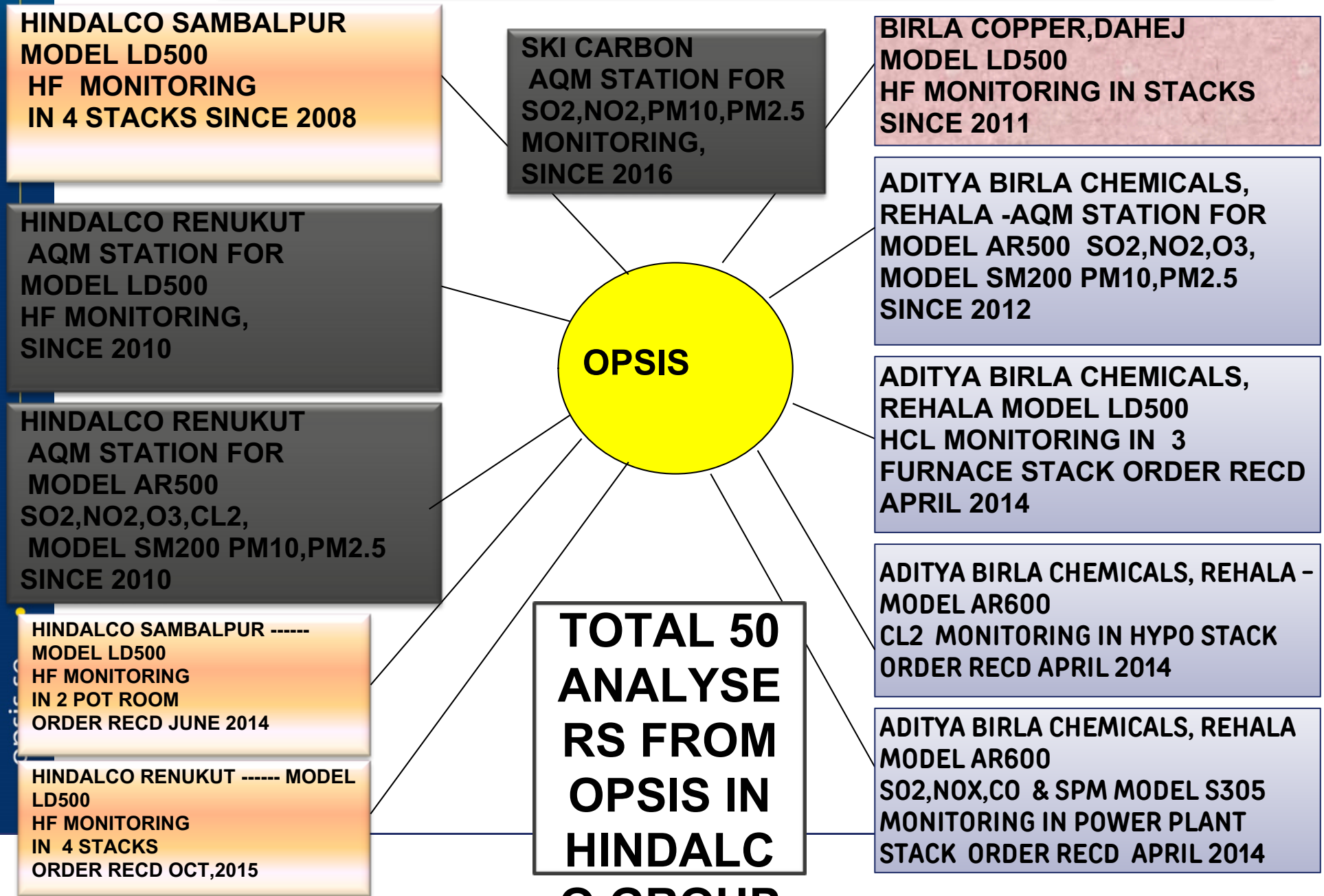
NEVCO ENGINEERS PVT. LTD.
sales@nevcoengineers.com www.nevcoengineers.com +91-9999210569

Click to edit the title text format

S.No.	Reference Customer list	Location	Qty	Year	Parameters Monitored
1	Dr. Reddy Laboratories	AP & Telangana	5	2011	CAAQMS SO2, NO2, PM 10, PM 2.5
2	HIKAL LTD- UNIT 2	Karnataka	1	2022	CAAQMS SO2, NO2, PM 10, PM 2.5
3	Dr. Reddy Laboratories	AP & Telangana	1	2012	CEMS SO2, NO, NO2, CO, CO2, O2, SPM
4	FARMSON PHARMA LTD VADODARA	Gujrat	2	2021	CEMS SO2, NO, NO2
5	ASTEC LIFE SCIENCES	Maharastra	1	2021	CEMS SO2, NO, NO2
6	IOL Chemicals and Pharmaceuticals Ltd	Punjab	1	2015	CWQMS pH, BOD, COD, TSS
7	EXEMED PHARMACEUTICALS	Gujrat	1	2015	CWQMS pH, BOD, COD, TSS
8	MALLADI DRUGS	TamilNadu	1	2015	CWQMS pH, BOD, COD, TSS
9	AIMCO PESTICIDES LIMITED	Maharastra	1	2015	CWQMS pH, BOD, COD, TSS
10	HLL LIFE CARE	Karnataka	1	2016	CWQMS pH, BOD, COD, TSS, FLOW
11	HIKAL LTD	Karnataka	1	2018	CWQMS pH, BOD, COD, TSS, FLOW
12	EXEMED PHARMACEUTICALS	Gujrat	1	2018	CWQMS pH, BOD, COD, TSS
13	KAWMAN PHARMA	TamilNadu	1	2018	CWQMS pH, BOD, COD, TSS
14	MALLADI DRUGS, RANIPET	TamilNadu	1	2018	CWQMS pH, BOD, COD, TSS
15	Sun Pharma Unit1	Sikkim	1	2019	CWQMS pH, BOD, COD, TSS, FLOW
16	Sun Pharma Unit2	Sikkim	1	2019	CWQMS pH, BOD, COD, TSS, FLOW
17	IDEAL CURES PVT. LTD.	Sikkim	1	2019	CWQMS pH, BOD, COD, TSS, FLOW
18	ARISTO PHARMACEUTICALS PVT. LTD	Sikkim	1	2019	CWQMS pH, BOD, COD, TSS, FLOW
19	MACLEODS PHARMACEUTICALS LTD	Sikkim	1	2019	CWQMS pH, BOD, COD, TSS, FLOW
20	AISHWARYA HEALTHCARE	Sikkim	1	2019	CWQMS pH, BOD, COD, TSS, FLOW
21	SWISS GARNIER GENEXIAA SCIENCES PRIV	Sikkim	1	2019	CWQMS pH, BOD, COD, TSS, FLOW
22	SWISS GARNIER GENEXIAA SCIENCES PRIV	Sikkim	1	2019	CWQMS pH, BOD, COD, TSS, FLOW
23	STP PHARMACEUTICALS PVT. LTD.	Sikkim	1	2019	CWQMS pH, BOD, COD, TSS, FLOW
24	BIOCON	TamilNadu	1	2021	CWQMS pH, BOD, COD, TSS, FLOW

	CEMENT PLANT USER LIST IN INDIA			
1	PARASAKTI CEMENT	JULY,2011	CAAQMS	PM10, PM2.5
2	SREE JAYAJYOTHI CEMENTS	AUGUST,2011	CAAQMS	PM10, PM2.5
3	India Cements Ltd- Malkapurram	OCT. 2011	CAAQMS	PM10, PM2.5
4	PARASAKTI CEMENT	MAY.2012	CAAQMS	PM10, PM2.5
5	India Cements Ltd- Malkapurram	12-Dec	CAAQMS	PM10, PM2.5
6	VICAT SAGAR CEMENT LTD	13-Aug	CAAQMS	SO2, NO2, PM10, PM2.5
7	ACC,MADUKARAI	13-Dec	CEM	SO2, NO,NO2
8	PARASAKTI CEMENT	DEC,2013	CAAQMS	PM10, PM2.5
9	STAR CEMENT	Jan-15	CAAQMS	SO2, NO2
10	ACC- WADI	Apr-15	CEMS	SO2, NO, NO2
11	BIRLA CEMENT-CHITORGARH	Apr-15	CEMS	SO2, NO, NO2
12	VICAT SAGAR CEMENT LTD	May-16	CAAQMS	SO2, NO2, O3, BENZENE, NH3, Hg, co, PM10, PM2.5
13	ACC ,LAKHERI	JULY,2017	CEMS	SO2,NOX,CO
14	ACC , TIKARIA	JULY,2017	CEMS	SO2,NOX,CO
15	ACC , CHANDRAPUR	APR,2018	CEMS	SO2,NOX,CO,CO2,H2O
16	ACC ,LAKHERI	Jun-18	CAAQMS	SO2, NO2,CO PM10, PM2.5
17	JK CEMENT,MANGROL	Jan-19	CEMS	SO2,NOX,CO,O2
18	JK CEMENT,MANGROL	Jan-19	CEMS	SO2,NOX,CO,O2
19	JSW,MUMBAI	Jun-19	CAAQMS	SO2, NO2,CO PM10, PM2.5
20	ACC- WADI	Aug-19	CEMS	SO2, NO, NO2,NOX--6 STACKS

OPSIS REFERENCES IN INDIA
WITH HINDALCO GROUP SINCE 2008



OPSIS REFERENCES IN INDIA WITH IFFCO SINCE 2014

OPSIS

IFFCO KANDLA
MODEL LD500
NH3 MONITORING
IN 6 STACKS SINCE 2014
WITH 2 ANALYSERS

IFFCO KANDLA BOILER
STACK SO2,NOX,CO
MONITORING WITH MODEL
AR620---2 NOS.
SINCE 2015

IFFCO KANDLA AQM
STATION FOR SO2,NO2,NH3
MODEL AR500 -- MODEL
SM200 PM10,PM2.5 SINCE
2015

IFFCO KANDLA
MODEL LD500
HF UPGRADATION IN 6
STACKS SINCE 2017 WITH 2
ANALYSERS

OPSIS

TOTAL 30
ANALYSERS
FROM OPSIS
IN IFFCO
SINCE 2014

REPEAT ORDER IFFCO KANDLA
AQM STATION FOR SO2,NO2,NH3
MODEL AR500 -- MODEL SM200
PM10,PM2.5 SINCE 2019– 2SETS

IFFCO PARADEEP AQM
STATION FOR SO2,NO2,NH3
MODEL AR500 -- MODEL SM200
PM10,PM2.5 SINCE 2019

REPEAT ORDER
IFFCO PARADEEP AQM
STATION FOR SO2,NO2,NH3
MODEL AR500 -- MODEL SM200
PM10,PM2.5 SINCE 2019

REPEAT ORDER
IFFCO PARADEEP AQM STATION
FOR SO2,NO2,NH3 MODEL AR500 --
MODEL SM200 PM10,PM2.5 SINCE
2020

IFFCO PARADEEP %SO2 ANALYSER
WORKING SINCE 2021

Click to edit the title text format

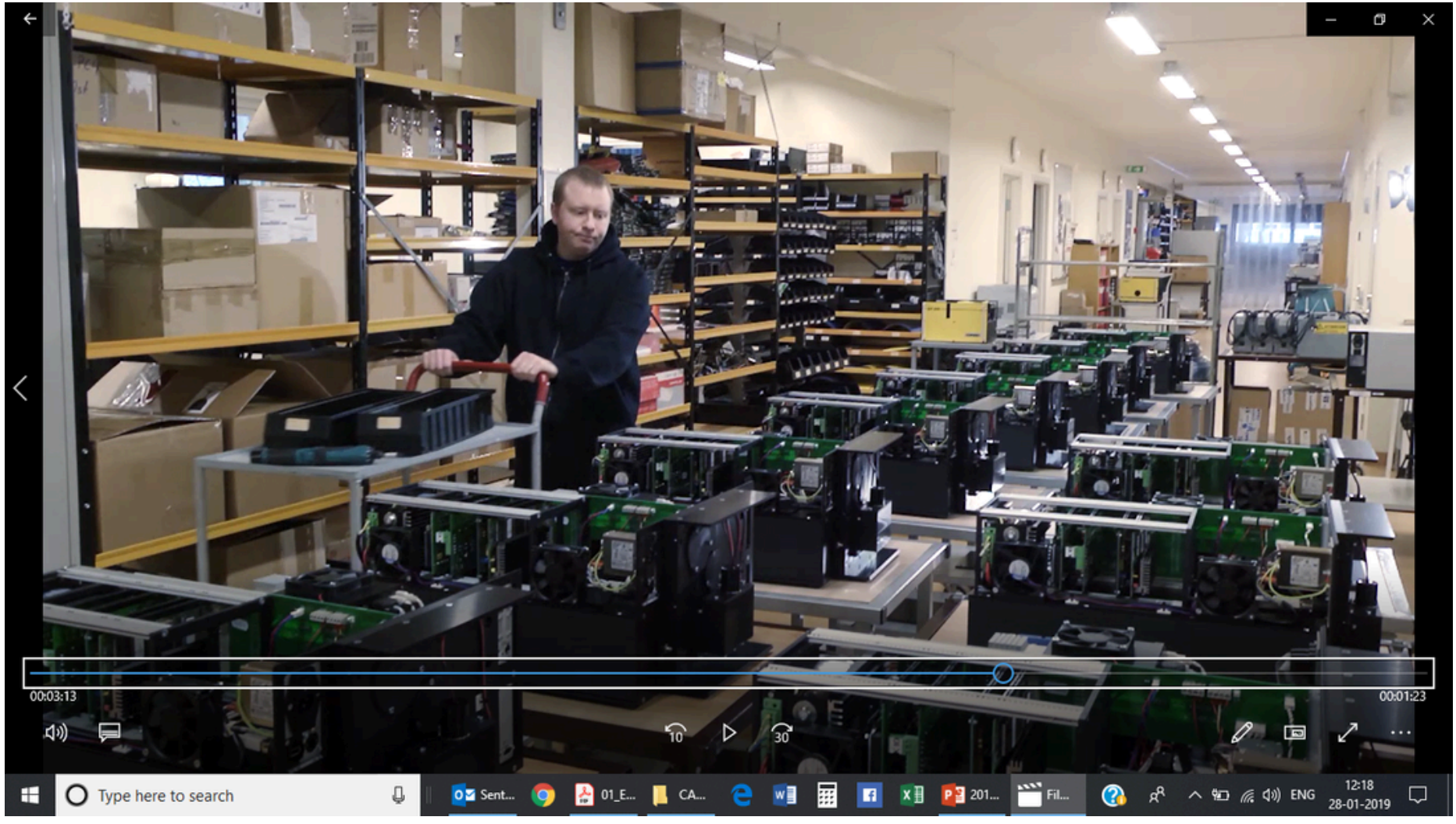
6	TATA STEEL LONG PRODUCTS	JHK	KANE SPARES
7	TATA STEEL LONG PRODUCTS JODA	OD	SINTROL 305 QAL
8	TATA STEEL LIMITED KHAPOLI	MH	FLOW METER
9	TATA STEEL LONG PRODUCTS LTD	OD	KANE 905
10	TATA STEEL LONG PRODUCTS LTD	OD	CO ANALYSER
11	TATA STEEL BSL	OD	LVL INTERFACE ANALYSER
12	TATA BSL LTD	MH	EQMS
13	TATA STEEL BSL LTD	MH	HCL ANALYSER
14	TATA STEEL LONG PRODUCTS LTD	OD	CONDUCTVITY METER
15	TATA STEEL LONG PRODUCTS LTD	JHK	WEATHER STATION
16	TATA STEEL LONG PRODUCTS LTD.	JHK	CALIB FGAQUINTOX
17	TATA STEEL LONG PRODUCTS LTD		CMC FOR KANE 9206
18	TATA STEEL LONG PRODUCTS		CO ANALYSER
19	TATA POWER (MAITHON POWER)		DATA TRANS
20	TATA SPONGE IRON	OD	SAMPLE PROBE
21	TATA SPONGE IRON LTD	OD	S305
22	TATA SPONGE IRON	OD	OPSIS AQM WITH 3YRS CMC
23	TATA STEEL LONG PRODUCTS LTD	OD	O2 ANALYSER
24	TATA Steel Long Products Limited	OD	AR602Z (SO2)
25	TATA Steel Long Products Limited	OD	SPM

Click to edit the title text format

1. **Ahmedabad Municipal Corporation, Ahmedabad (DO & TSS for Aeration)**
2. **Ambetronics India Pvt Ltd, Mumbai (pH, DO, BOD, COD, TOC in ETP Outlet)**
3. **Encardio Rite India Pvt Ltd, Lucknow (pH, Cond, TDS, BOD, Ammonium, Nitrate, BOD, COD, TOC, TSS, MLSS in plant ETP Outlet)**
4. **Pune Municipal Corporation, Pune (COD and TOC for STP Outlet)**
5. **Reliance Industries, Hazira (TOC & COD for STP outlet)**
6. **Sterling Auxiliaries India, Dahej (COD for ETP Outlet Monitoring)**
7. **Delkor Teknik India Pvt Ltd, Bangalore (DO, TSS & Sludge Level Analyzers for Clarifiers)**
8. **Vatech Wabag, Chennai (pH, Cond, TDS, DO, Turbidity for STP package)**
9. **L & T, Chennai (for a STP project abroad, pH/Cond, DO, TDS, Turbidity, MLSS)**
10. **Chennai Petrochemicals Pvt Ltd, Chennai (Turbidity measurement in desalination plant)**

- **Aaryan Systems, Mumbai (Ammonia and Nitrate measurement in Aeration, Nitrification and gentrification)**

11. **Mumbai Metro, Mumbai (pH, ORP and DO in Aeration)**


00:03:13
00:01:23
10
30
Type here to search
ENG
12:18
28-01-2019

WWW.OPSIS.SE

Kishor Kumar
Country Manager
– India,Sri Lanka,Bangladesh & Indonesia Operations
OPSIS AB , Sweden

Mob : 00 91 94440 33220 / 9791 292 292
E-mail : kishor@opsis.se

OPSIS AB,
NO.32,28TH STREET ,VAISHNAVI FLATS
THILLAI GANGA NAGAR
CHENNAI--600 061 ,TAMILNADU,INDIA
PHONE :00 91 44- 43588815
FAX NO. 00 91 44 22671773,
info@opsis.se, http://www.opsis.se

Thank you

www.opsis.se

opsis.se