

ESP Hopper Level Measurement – Innovative Solutions

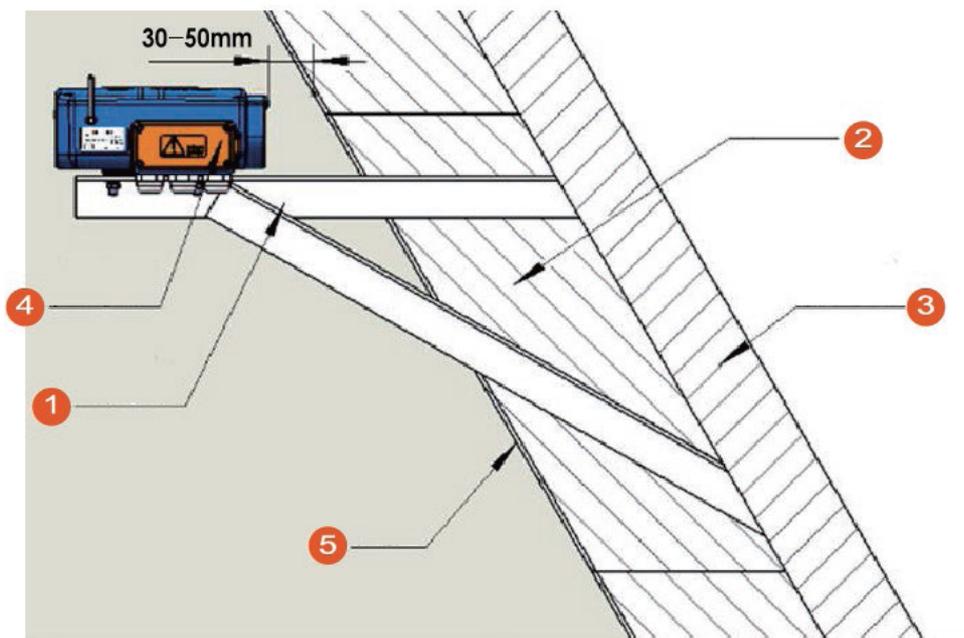
NOGS – Sensor

(Non-Contact Non-Intrusive Continuous Level Measurement for ESP Hoppers)

ESP Hopper Level Measurement is a perpetual problem for every Coal Fired Power Plant. Customer is always looking for a reliable continuous level measurement for an ESP Fly Ash Hopper as this would make operations and management of the ESP Ash Handling Management easy and trouble free. Moreover, the first 2 fields of ESP are the most loaded in terms of the quantum of Ash inside the Hopper and if managed well will lead to an efficient process

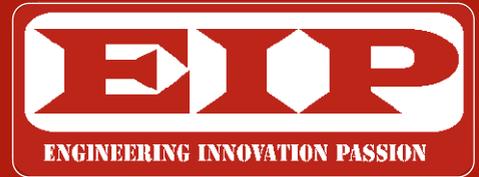
NOGS Sensor for Continuous Level Measurement of Fly Ash inside an ESP Hopper manages to solve the problem with below salient features.

- **Principle of Operation** – Gamma Rays emitted from the Ash is used for Level Measurement using a scintillation detector only as the sensor
- Completely independent of the process
- **Installation outside the Hopper (no cutting, no welding required)**
- Since no contact with Ash, hence there is no possibility of process related wear and tear, meaning 100% reliability
- **Zero Maintenance, truly fit and forget**
- **Cost Saving from Day 1** - when installed in the ESP Hoppers, you can truly isolate those hoppers from the timer evacuation cycles and evacuate only on need basis hence saving Air, Power, and Wear-Tear and thus saving cost from the first Day of Installation
- **Efficient Management of First 2 Fields of ESP Hoppers which contain the maximum Load of Fly Ash**



SPECIFICATIONS FOR ESP / BUFFER HOPPER CONTINUOUS LEVEL TRANSMITTER

APPLICATION	:	Continuous Level Measurement of Fly Ash inside the ESP and Buffer Hopper Recommended for First 2 Fields of ESP and All Buffer Hoppers
MATERIAL	:	Coal Fly Ash
ITEM	:	ESP Non-Contact Non-Intrusive Continuous Level Transmitter
QTY	:	As Required
OPERATING PRINCIPLE	:	Detects the Gamma Ions/ Radioactivity from Fly Ash to measure continuous Level (Naturally Occurring Gamma Ray Sensor) inside ESP and Buffer Hopper No Radioactive Source is used. Only Detector is used and Coal Fly Ash is the source of Gamma Ions/ Radioactivity
SUPPLY VOLTAGE	:	230/ 110 VAC or 24 VDC
AMBIENT TEMP.	:	-20° C TO 85° C (Mounted Outside the ESP Hopper)
OPERATING PRESSURE	:	Atm.
OUTPUT	:	4 – 20 mA (Continuous Level) / 2 Relay Contacts
LOCAL DISPLAY	:	LCD Display with Touch Buttons
HOUSING	:	Die Cast Aluminium
PROTECTION	:	IP-66
MOUNTING	:	To be mounted Outside the ESP Hopper Wall and No Cut out is required in hopper wall / Cladding
TEMP. COMPENSATION	:	In Built
REQUIRED APPROVALS	:	Since the device is only a detector so no special approvals required for buying and using the device



Level Measurement Solutions

for over

3 Decades

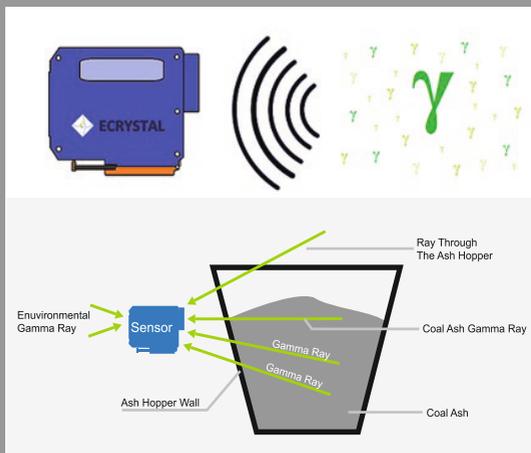
PRODUCT INTRODUCTION

Non-radiation coal ash sensor product

▶ CAS series product, based on “NOGS” γ -ray detection technology originally created by Ecrystal Corporation, is of no radioactive substances itself. Widely used in level measurement field, it can make full use of the trace amounts of natural radionuclides widespread in the natural environment. It can effectively extract the level signals from noises, then to measure the magnitude of materials, according to the changing of Gamma rays sensed by the device adopting random signal recognition technology;

▶ CAS series have a dedicated built-in processor, which can effectively distinguish the γ -ray of fly ash from those of noises in the background environment, and then translate the intensity of gamma ray to precise material level figures;

Traditional congenetic products require radioactive sources, the dose of which is far greater than it of nature, which makes it naturally short in environmental protection, installation, procurement, maintainability and service life, etc.



NOGS Technology Of Ecrystal Corporation

NOGS (Naturally Occuring Gamma-ray Sensor), a new-type, secure γ -ray detection technology, widely applied in the level measurement of electrostatic precipitators of fly ash in the hopper.

γ -ray detection technology of NOGS is free of dangerous, radioactive sources which are environmentally polluted, so this kind of technology is highly efficient and safe, which could easily help the coal-fired power plants to meet environmental regulation.

FEATURES

CAS Series Product

CAS Remoter



CAS Site Host



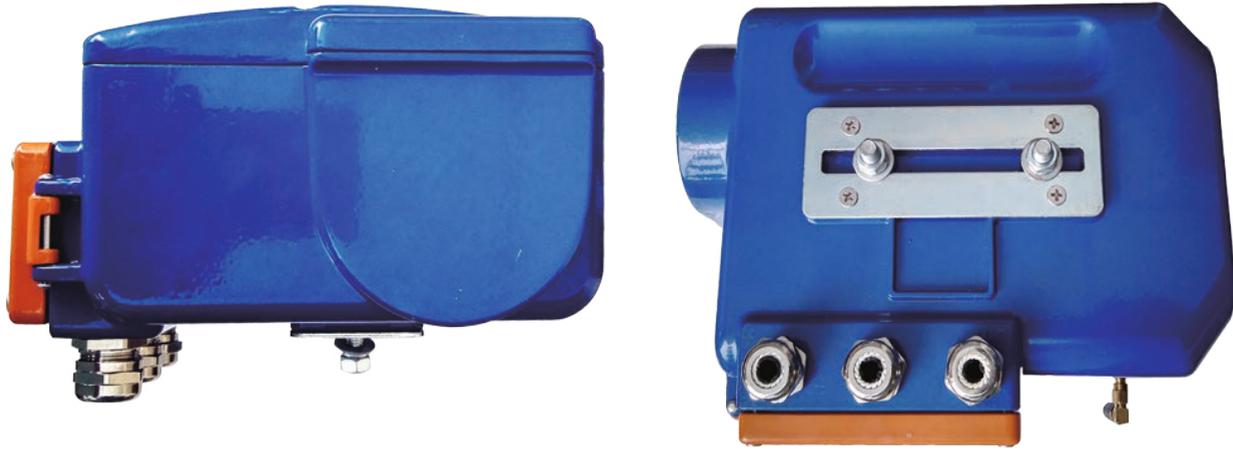
CAS Series Sensor

COAL ASH SENSOR



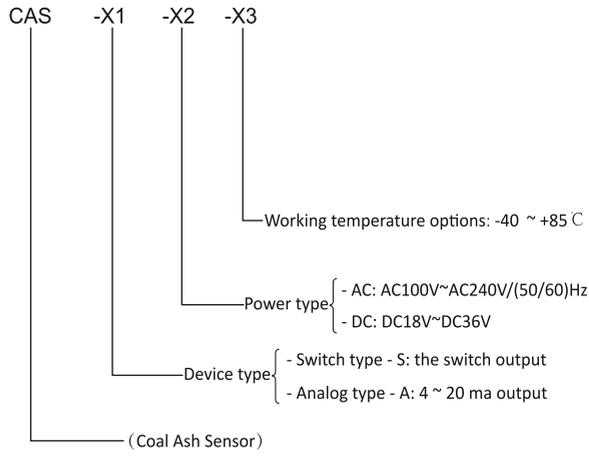
- 01 Non-contact measurement;
- 02 No radioactive sources;
- 03 Capable of independent operation of installation and maintenance;
- 04 Non consumable parts like radioactive sources, extremely low maintenance costs with life cycle up to 10 years;
- 05 Provide accurate level signals;





- 06 Excellent performance in the harsh working environment:
 - a.operating temperature range:-40℃ ~ +85℃;
 - b.Solid, complete sealed structure with a security protection grade of IP66, is fully capable of outdoor working;
 - c.Wide working voltage range of alternating current: AC 100V-240V; DC 18V-36V
- 07 Having obtained UL, FCC, CE,etc;
- 08 Easily modify preset working parameters via display panel, remoter and EOMS;
- 09 Analog signals (4-20 ma) output ;
- 10 Comprehensive self-check function (temperature, grounding, analog open load, etc.)

Type	CAS	-X1	-X2	-X3
Meaning	(Coal Ash Sensor)	Device type	Power options	Working temperature options



SELECTION GUIDE

Output port instructions

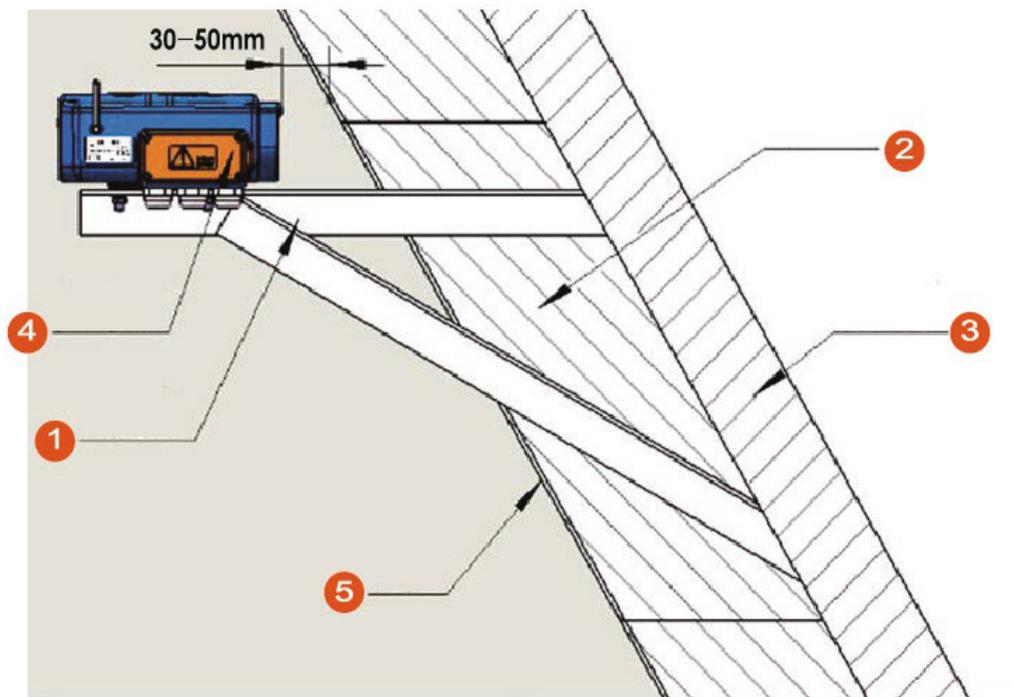
Terminal	No.	Description	Functional specification
	1	Relay1 normally-closed contact	<ul style="list-style-type: none"> > Relay 1 and relay 2 are used as level alarm output; > While the level alarming and the relay acting, common port COM and normally-closed contact CLOSE disconnect, common port COM and normally-open contact OPEN connect; > When the level alarm removed, relay back to off-position, common port COM and normally-closed contact CLOSE connect, common port COM and normally-open contact OPEN disconnect;
	2	Relay1 common port	
	3	Relay1 normally-open contact	
	4	Relay2 normally-closed contact	<ul style="list-style-type: none"> > Can be set as fault alarm output or level alarm output; > When set as fault alarm output, relay 3 acts after one or a few "fault" is confirmed: common port COM and normally-open contact OPEN connected; Relay 3 gets back to power-off status after all the "faults" removed: common port COM and normally-open contact OPEN disconnected; > When set as meter alarm output, use relay 3 as the method of Relay1 Relay2.
	5	Relay 2common port	
	6	Relay2 normally-open contact	
	7	Relay 3common port	<ul style="list-style-type: none"> > The port is invalid in switch mode; > 4-20ma output current according to the materialt level information; > Built-in DC24V feeder, without external power supply;
	8	Relay3 normally-open contact	
	9	Analog output	<ul style="list-style-type: none"> > DC type power input > AC power input;
	10	Analog output	
	11	DC+	<ul style="list-style-type: none"> > AC power input;
	12	Grounding	
	13	DC-	
	11	AC firing line	<ul style="list-style-type: none"> > AC power input;
	12	Grounding	
	13	AC zero line	

CAS Sensor Spec

Product Type	Switch CAS - S type	Analog CAS - A type	
Net weight	About 4.5 kg		
Size	253mm*189mm*106mm(length*width*height)		
Housing material	ADC 12		
Power input	AC:100V~240V 50/60 Hz < 10W	CAS-S-AC	CAS-A-AC
	DC:18V~36V < 10W	CAS-S-DC	CAS-A-DC
Cable connector	M20 waterproof cable locks		
Relative humidity	Less than 85%		
Operating temperature range	-40 ~ +85 C		
The switch quantity of analog sensors	The switch quantity	Analog quantity	
Data output	Relay	Analog (4—20mA)	
Relay output	Contact capacity: 1A30VDC /1A250VAC		
Wireless transmission distance	Range of visibility: 1000m		
The response time	1~999 seconds		
Resolution ratio	1CPS		
Safety standards & wireless authentication	UL CE & FCC		

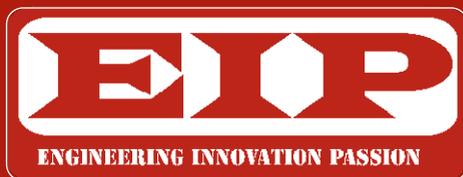


INSTALLATION INTRODUCTION



Installation diagram of CAS

- ① Steel angle
- ② Thermal insulation layer
- ③ Container wall
- ④ Coal ash sensor
- ⑤ Iron sheet



About EIP

EIP was established about three decades ago, since then the company has been able to build its reputation in the field of Design / Manufacture Supply of accurate reliable POINT LEVEL AND INVENTORY CONTROL SYSTEMS which have proven to be in satisfactory operation under harsh environmental conditions. Apart from India EIP products have also been proven in other countries.

EIP aims to provide not only stable operating system but also to re-engineer equipments and systems as per the needs of the customers. This has been possible due to our wide experience in this field backed by constant technological development and absorption of new technologies developed world-wide.

EIP's strong endeavor to provide the best solution to its customers has gone a long way in introducing the most advanced level measurement technology from time to time.

Recent value addition to the Solutions provided by EIP is the Non Contact Ultrasonic Flow Meter which solves the problem of accurate flow measurement without any invasion into the pipeline, and the Solid Flow Detector which determines any choking or jamming of the pipelines in which ash or any other Solid material is flowing.

EIP has also diversified its portfolio to provide Zero leakage Non Corrosive Heavy Duty Knife Gate Valves, Butterfly Valves and Water Control Gate.

EIP ENVIRO LEVEL CONTROLS PVT LTD

B-45 & F-60, SECTOR 8, NOIDA 201301

Tel No: 0120-4243333 ,

Email : rgoyal@eipenviroindia.com

rajat@eipenviroindia.com

Website: www.eipenviroindia.com