RF Admittance Level Switch

Catalog

SHENZHEN JIWEI AUTOMATIONS LTD

RF Admittance Level Switch

Cape-11 RF Admittance Level Switch, is an measuring equipment which has high reliability and excellent versatility. The switch is used to detect the level of fly ash, solid granular and adhesive materials**.** The design is based on absorbing the advantages of similar products of other rival brands and combining with Jiwei's independent innovative technology and processes.

Cape-11 RF Admittance Level Switch series use probe to sense the change of capacitive reactance and impedance between the probe and the vessel while detecting the material position .Within the electronic unit, the probe's measuring pole and the reactance of empty vessel together form a balanced bridge circuit and generate a stable oscillation signal. When the level rises and measured medium covers the probe, the reactance between the probe and vessel wall changes, which causes imbalance of the bridge circuit, and stops generating oscillation signal. This change will be detected by the circuit, and then output an alarm signal. Meanwhile, the oscillation signal works as a radio frequency signal that is applied to the probe's measuring pole, but also goes through the 1: 1 voltage follower and is sent to shield pole. So, the RF signals of measuring pole and shield pole have the same electric potential, phase, and frequency, but they are isolated and independent each to other. When a material adhere to the probe, there is no electric potential difference between measuring pole and shield pole, so the form of electrical isolation ensures the signal of shield pole has no effect on the detection, thus the change of reactance of probe's measuring pole can only decided by the measured material between the probe's measuring pole and the vessel, which do not make the coating of probe affect the detection.

in development, Cape-11 Admittance Level Switch series absorb the advantages of similar products of other rival brands combining with Jiwei's independent innovative technology and processes, meanwhile we have been focusing on process details; strictly control the production processes and quality inspections to ensure our products have extremely high quality and reliability. Compared to the similar products of other brands, Cape-11 Admittance Level Switch series have the following advantages:

- Excellent versatility, it can be widely used in the measurement of fly ash, solid granular and adhesive materials.
- Has external dual color LED indicators, by rotating the housing relatively to process fitting make the LED convenient for remote observation.
- Modular design with high reliability and easy to install while calibration is not required.
- Have passed through reliable tests and have received certifications by third party.
- Has strong impact resistance, while the external layer is covered with stainless steel protective tube.
- Process temperature is up to 450℃.

Cape-11 RF Admittance Level Switch series include four models: Standard Type, Guard Type, Rope Type and Ultra-high Temperature Type:

Cape-11A Standard Type:

Suitable for measurement of dust, coal ash etc., has good versatility, and the installation and maintenance are simple.

Cape-11P Guard Type:

On the basis of the Standard Type, there is an extra stainless steel protective tube, which is able to withstand the impact of heavy materials.

Cape-11R Rope Type:

Suitable for measurement of large tanks and silos, vertical installation, effectively avoid side impact of the material.

Cape-11H Ultra-high Temperature Type:

The probe uses high temperature ceramic material, its process temperature can reach up to 450℃, which is industry-leading.

Cape-11A Standard Type RF Admittance Level Switch

Overview

Cape-11A Standard Type RF Admittance Level Switch, can measure capacitance as well as impedance between the probe and the vessel, particularly suitable for measuring dusts, coal ashes and other mediums. The probe is not affected by adhesive materials, making it to solve other tough applications efficiently with strong versatility. Cape-11A uses modular design, the installation and maintenance are simple，and is equipped with external LED lights for remote observation.

Features

- Excellent versatility, it can be widely used in the measurement of fly ash, solid granular and adhesive materials.
- Has external dual color LED indicators, by rotating the housing relatively to process fitting to make the LED convenient for remote observation.
- Modular design with high reliability and it is convenient for installation and maintenance.
- To ensure extremely high reliability, our products have passed through reliable tests and have received certifications by third party.
- Cheap and high performance-price ratio.

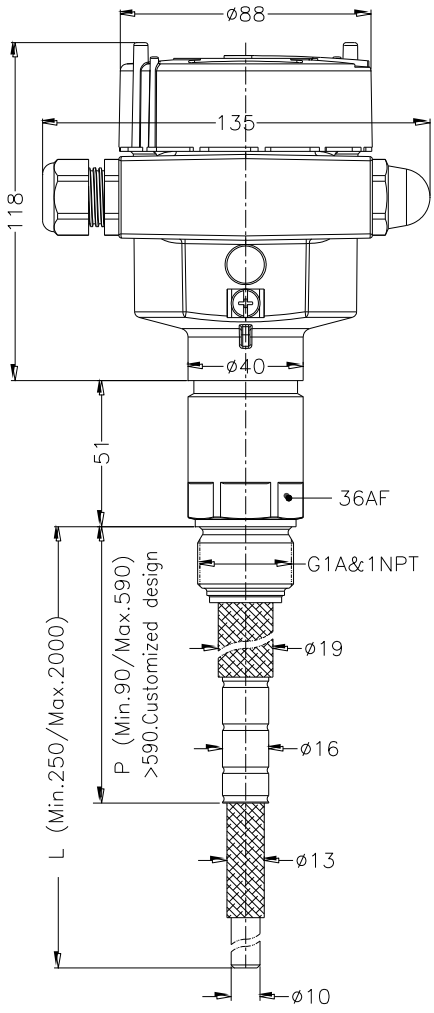
Technical data

Medium	Type	Solid granular, Adhesive materials.
	Dielectric constant	≥1.6
Probe data	Length	250～2000mm
	Length of shield	90mm/240mm/300mm /590mm, Customer specified
	Diameter	φ8mm/φ10mm
Materials	Housing	Aluminum
	The inner shell	Plastic
	Metal of probe	SUS304, 316L
	Insulation of probe	PTFE
Power	AC	85～264VAC
	DC	18～30VDC
	Power consumption	≤3W
Switch delay	When immersed	1S
	When laid bare	1S
Signal output	Relay	DPDT, 8A/250VAC/30VDC
	Delay	0-30S Continuously adjustable
Operating conditions	Process temperature	-40℃～250℃
	Ambient temperature	-40℃～70℃
	Storage and transport temperature	-40℃～80℃
Approvals	Protection rating	IP66

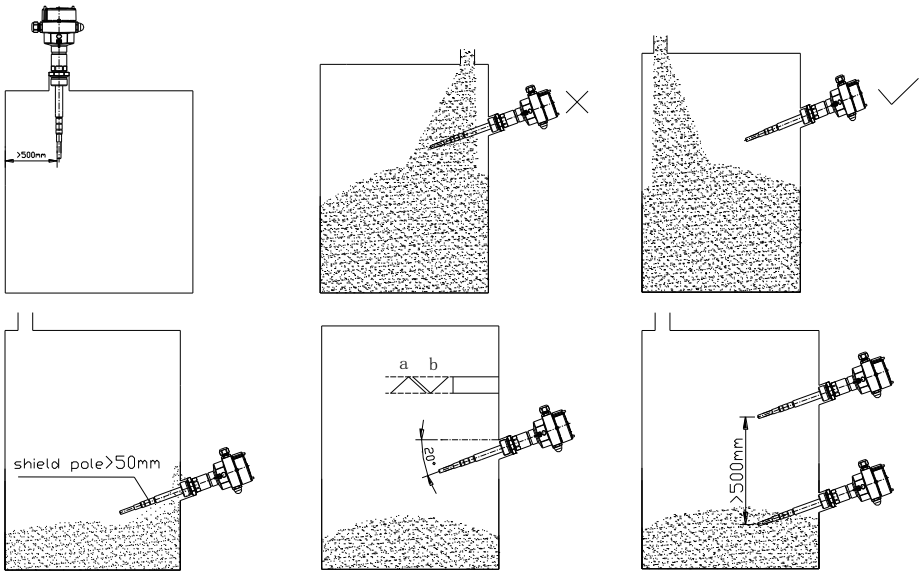
Applications

- Dust bag, light ash hopper and sump pumps in ash conveying system at power plant.
- Coal ash silo (fly ash).
- Dust bin, hopper of flue gas desulphurization equipment.
- Limestone silo of sintering desulfurization unit.

Dimensional drawings



Circuit diagrams



Notes：

- The shield pole of RF Admittance Level Switch should protrude into the silo at least 50mm.
- When mounting vertically, the RF Admittance Level Switch should be mounted at a distance of 500mm from the vessel wall.
- Mounting RF admittance Level Switch approx 20°inclined to the vessel bottom to avoid buildup.
- the vertical distance between the two probes is at least 500mm.
- When installed, it should be avoided in the inlet and outlet points.

  When the RF Admittance Level Switches need to be installed in multiple locations,

Order information

Cape-11 A □ □ □ — □ □ □ — □ □ □ □

Power	A 220 V AC D 24 V DC
Cable entry	M M20*1.5 N ½ " NPT
Process fitting	TC Thread G ¾"A TD Thread ¾" NPT TH Thread G 1"A TM Thread 1" NPT TE Thread G 1¼"A TF Thread 1¼" NPT TG Thread G 1½"A TN Thread 1½" NPT FA Flange DN50 PN16 FB Flange DN80 PN16 XX customized design
Length of shield pole	Common length：90 240 300 590 Customized design（Unit：mm）
Intruding depth	Common length：250 550 750 900 1000 12000 Customized design （Unit：mm） Optional range：250～2000mm

Note: The number of intruding depth and length of shield poles are fixed at three and four digits respectively, If the number of real depth or length is less than the required fix digits, zero should be added in front of its number.
For example: The length of shield pole is 90mm, expressed as "090"; the intruding depth of 750mm, expressed as "0750"。

Cape-11P Guard Type RF Admittance Level Switch

Overview

Cape-11P Guard Type RF Admittance Level Switch is on the basis of Standard Type with stainless steel protective tube, and can withstand the impact of heavy materials. This switch is particularly aimed to measure the level of fly ash, solid granular and adhesive materials. The design of anti-linked material circuit can eliminate measuring error caused by the buildup or the material coating on the vessel, effectively improve the detection's accuracy and reliability, also, make the product suitable for dust control at power station, and position control of the ash bin, etc

Features

- Has strong impact resistance, while the external layer is covered with stainless steel protective tube.
- Widely used in the measurement of fly ash, solid granular and adhesive materials, particularly suitable for dust control at power station, and position control of the ash bin, etc.
- Has external dual color LED indicators, by rotating the housing relatively to process fitting to make the LED convenient for remote observation.
- Modular design with high reliability and it is convenient for installation and maintenance.
- To ensure extremely high reliability, our products have passed through reliable tests and have received certifications by third party.

Technical data

Medium	Type	Heavy solids, Adhesive material
	Dielectric constant	≥1.6
Probe data	Length	750～2000mm
	Length of shield	90mm/240mm/300mm /590mm, Customer Specified
	Length of protective sleeve	Length of probe 750-1200mm: 210mm/370mm Length of probe＞1200mm： Customer specified
	Diameter	φ10mm
Materials	Housing	Aluminum
	The inner shell	Plastic
	Metal of probe	SUS304
	Insulation of probe	PTFE
	Protective sleeve	SUS304
Power	AC	85～264VAC
	DC	18～30VDC
	Power consumption	≤3W

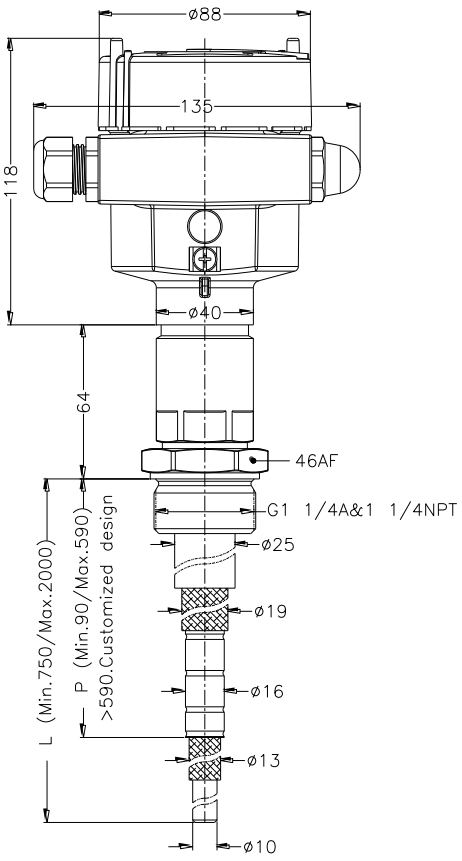
Switch delay	When immersed	1S
	When laid bare	1S
Signal output	Relay	DPDT, 8A/250VAC/30VDC
	Delay	0-30S Continuously adjustable
Operating conditions	Process temperature	-40℃～250℃
	Ambient temperature	-40℃～70℃
	Storage and transport temperature	-40℃～80℃
Approvals	Protection rating	IP66

Applications

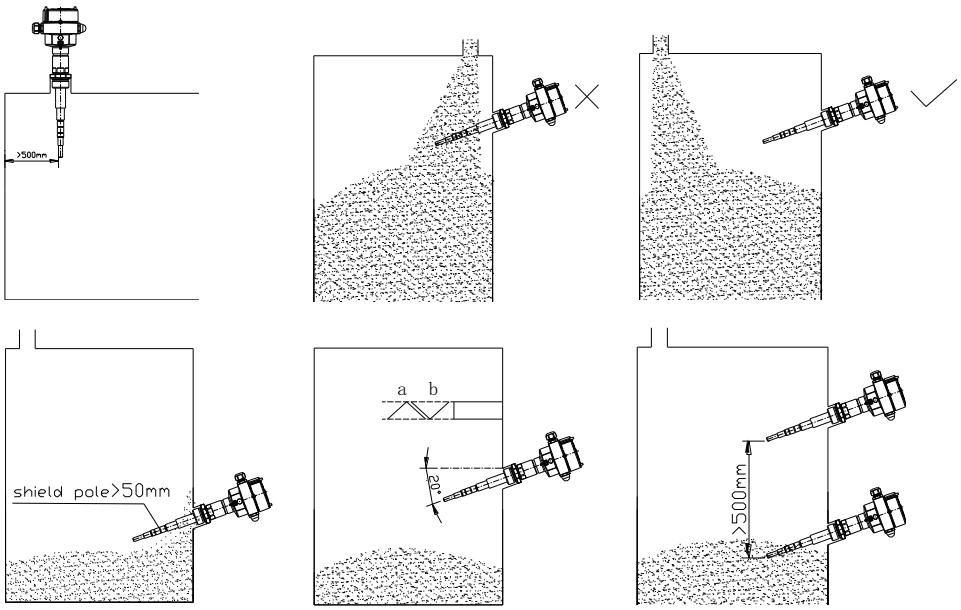
It is typically applied in fields as follow:

- Heavy ash hopper in ash conveying system at power plant.
  Has strong impact resistance, while the external layer is covered with stainless steel protective tube.
- Alumina powder silo and CDQ (Coke Dry Quenching) charge warehouse at smelting plant.
- Raw materials warehouse and cement silo at cement plant.

Dimensional drawings



Circuit diagrams



Notes：

- The shield pole of RF Admittance Level Switch should protrude into the silo at least 50mm.
- When mounting vertically, the RF Admittance Level Switch should be mounted at a distance of 500mm from the vessel wall.
- Mounting RF admittance Level Switch approx 20°inclined to the vessel bottom to avoid buildup.
- the vertical distance between the two probes is at least 500mm.
- When installed, it should be avoided in the inlet and outlet points.
  When the RF Admittance Level Switches need to be installed in multiple locations.

Order information

Cape-11 P □ □ □ □ □ □ □ □ □ □

Power	A 220 V AC D 24 V DC
Cable entry	M M20*1.5 N ½ " NPT
Process fitting	TH Thread G 1"A TM Thread 1" NPT TE Thread G 1¼"A TF Thread 1¼" NPT TG Thread G 1½"A TN Thread 1½" NPT FC Flange DN50 PN16 FD Flange DN80 PN16 XX Customized design
Length of shield pole	Common length: 300 590 Customized（Unit：mm）
Intruding depth	Common length: 750 900 1000 12000 Customized design (Unit：mm） Optional range：750~2000mm

Note: The number of intruding depth and length of shield poles are fixed at three and four digits respectively, If the number of real depth or length is less than the required fix digits, zero should be added in front of its number.
For example: The length of shield pole is 90mm, expressed as "090"; the intruding depth of 750mm, expressed as "0750"。

Cape-11R Rope Type RF Admittance Level Switch

Overview

Cape-11R Rope Type Admittance Level Switch is designed for top-loading measurement and when the measuring ranges more than two meters; one side of the cable components needs to connect with the probe. This type of product is suitable for large tanks and silos measurement, is installed in a vertical way, can effectively avoid the impact of the material.

Features

- It is applicable to detect the level of measured medium in large tanks and silos.
- Has external dual color LED indicators, by rotating the housing relatively to process fitting to make the LED convenient for remote observation.
- Modular design with high reliability and it is convenient for installation and maintenance.
- To ensure extremely high reliability, our products have passed through reliable tests and have received certifications by third party.

Technical data

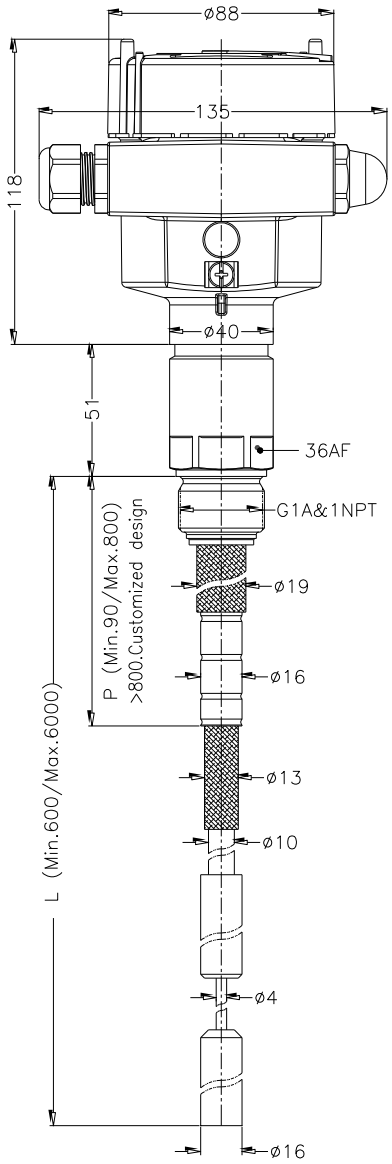
Medium	Type	Solid granular
	Dielectric constant	≥1.6
Probe data	Length	600～6000mm
	Length of shield	90～800mm, Customer specified
	Cable diameter	φ6mm
Materials	Housing	Aluminum
	The inner shell	Plastic
	Metal of probe	SUS304, 316L
	Insulation of probe	PTFE
	Rope	SUS304
Power	AC	85～264VAC
	DC	18～30VDC
	Power consumption	≤3W
Switch delay	When immersed	1S
	When laid bare	1S
Signal output	Relay	DPDT, 8A/250VAC/30VDC
	Delay	0-30S Continuously adjustable
Operating conditions	Process temperature	-40℃～250℃
	Ambient temperature	-40℃～70℃
	Storage and transport temperature	-40℃～80℃
Approvals	Protection rating	IP66

Applications

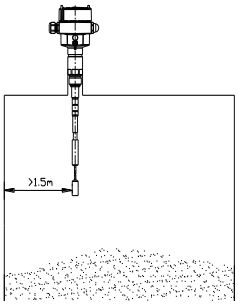
It is typically applied in level measurements with large range, such as:

- Coal bunker at power plant
- Cement silo at cement plant

Dimensional drawings



Circuit diagrams



Notes:

- Rope Type Admittance Level Switch must be mounted vertically.
- Probe must be mounted at a least distance of 1.5m from the vessel wall.
- When installed, it should be avoided in the inlet and outlet points.

Order information

Cape-11 R □ □ □ □ □ □ □ □ □ □ □

Power	A 220 V AC D 24 V DC
Cable entry	M M20*1.5 N ½ " NPT
Process fitting	TC Thread G ¾"A TD Thread ¾" NPT TH Thread G 1"A TM Thread 1" NPT TE Thread G 1¼"A TF Thread 1¼" NPT TG Thread G 1½"A TN Thread 1½" NPT FC Flange DN50 PN16 FD Flange DN80 PN16 XX Customized design
Length of shield pole	Customized design（Unit：mm） Optional range：90～800mm
Intruding depth	Customized design（Unit：mm） Optional range：600～6000mm

Note: The number of intruding depth and length of shield poles are fixed at three and four digits respectively, If the number of real depth or length is less than the required fix digits, zero should be added in front of its number.
For example: The length of shield pole is 90mm, expressed as "090"; the intruding depth of 750mm, expressed as "0750"。

Cape-11H Ultra-high Temperature RF Admittance Level Switch

Overview

Cape-11 H Ultra-high Temperature Type Admittance Level Switch, is specially applied to working condition that process temperature is over 250℃, its highest process temperature can be reach up to 450℃.This switch's probe is made of high temperature resistant ceramic materials, and it is also widely used in metallurgy, environmental protection, chemical industry, etc.

Features

- Ceramic probe, process temperature can be reach up to 450℃.
- Has external dual color LED indicators, by rotating the housing relatively to process fitting to make the LED convenient for remote observation.
- Modular design with high reliability and it is convenient for installation and maintenance.
- To ensure high reliability, products have passed through reliability testing and certification by a third party.

Technical data

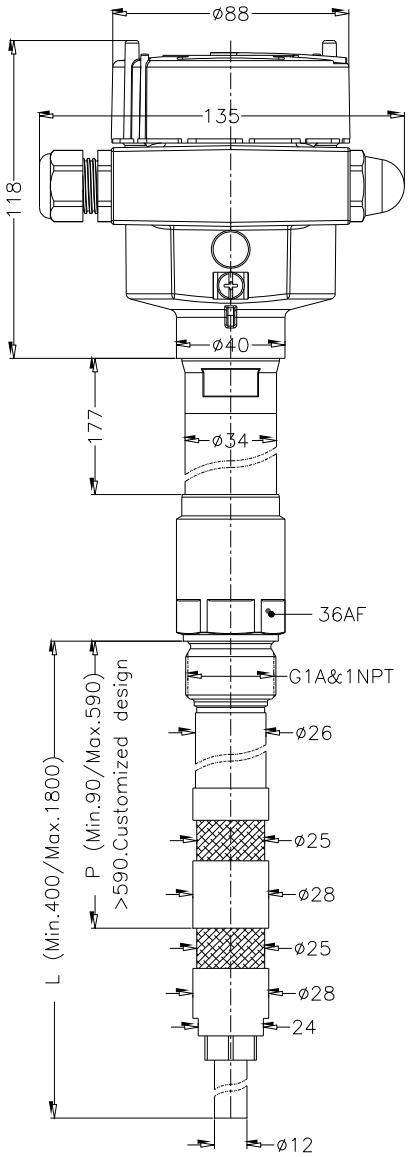
Medium	Type	Bulk solids at high temperatures
	Dielectric constant	≥1.6
Probe data	Length	400～1800mm
	Length of shield	90～590mm, Customer specified
	Diameter	φ12mm
Materials	Housing	Aluminum
	The inner shell	Plastic
	Metal of probe	SUS304
	Insulation of probe	Ceramic
	Cable	SUS304
Power	AC	85～264VAC
	DC	18～30VDC
	Power consumption	≤3W
Switch delay	When immersed	1S
	When laid bare	1S
Signal output	Relay	DPDT, 8A/250VAC/30VDC
	Delay	0-30S Continuously adjustable
Operating conditions	Process temperature	-40℃～450℃
	Ambient temperature	-40℃～70℃
	Storage and transport temperature	-40℃～80℃
Approvals	Protection rating	IP66

Applications

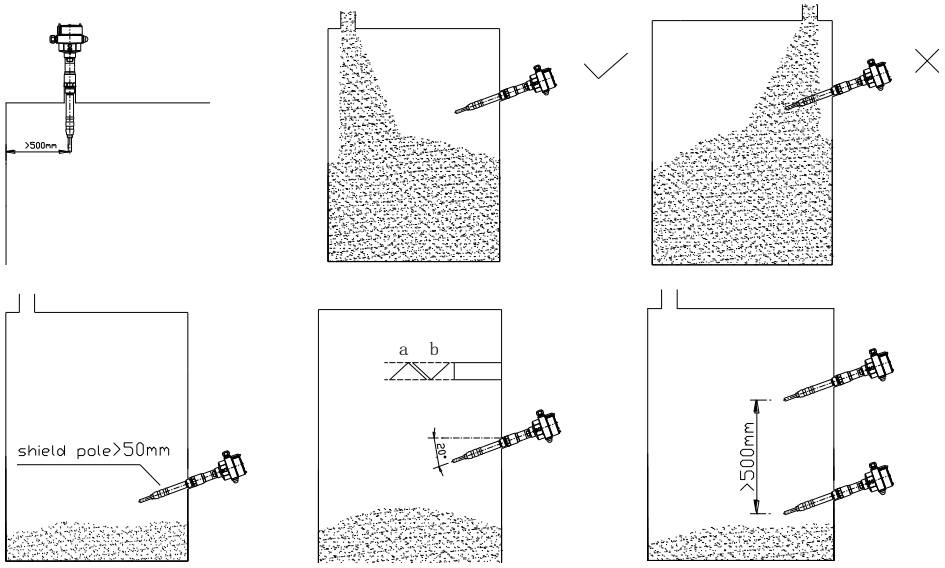
It is typically applied in level control with the working temperature up to 450 ℃, such as:

- Hoppers of Coal economizer at power plant.
- Sintered ash silo at smelting plant.
- Level control of cement material in grate cooler at cement plant.

Dimensional drawings



Circuit diagrams



Notes:

- The shield pole of RF Admittance Level Switch should protrude into the silo at least 50mm
- When mounting vertically, the RF Admittance Level Switch should be mounted at a distance of 500mm from the vessel wall.
- Mounting RF Admittance Level Switch approx 20°inclined to the vessel bottom to avoid buildup.
- When the RF Admittance Level Switches need to be installed in multiple locations, the vertical distance between the two probes is at least 500mm.
- When installed, it should be avoided in the inlet and outlet points.

Order information

Cape-11 H □ □ □ – □ □ □ – □ □ □ □

Power	A 220 V AC D 24 V DC
Cable entry	M M20*1.5 N ½ " NPT
Process fitting	TH Thread G 1"A TM Thread 1" NPT TE Thread G 1¼"A TF Thread 1¼" NPT TG Thread G 1½"A TN Thread 1½" NPT FC Flange DN50 PN16 FD Flange DN80 PN16 XX Customized design
Length of shield pole	Customized design（Unit：mm） Optional range：90～590mm
Intruding depth	Customized design（Unit：mm） Optional range：400～1800mm

Note: The number of intruding depth and length of shield poles are fixed at three and four digits respectively, If the number of real depth or length is less than the required fix digits, zero should be added in front of its number.
For example: The length of shield pole is 90mm, expressed as "090"; the intruding depth of 750mm, expressed as "0750"。