

RADIO FREQUENCY TYPE LEVEL SWITCH

# HCC-96RF Series



ASME



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## Overview

**HCC(HPC)-96RF Series** is a Radio Frequency Type Level Switch and it detects level of a medium by sensing of capacitance value change caused by a dielectric constant of each medium.

## Characteristics

- Prevention of malfunction caused by material build-up on the sensor. (compensation electrode)
- Widely used for various type of medium such as solid and powder.
- Applicable to high temperature.
- High sensitivity and stability.
- Semi-permanent life cycle due to moveless parts.
- Easy installation and calibration.
- Operating can be checked at the site.

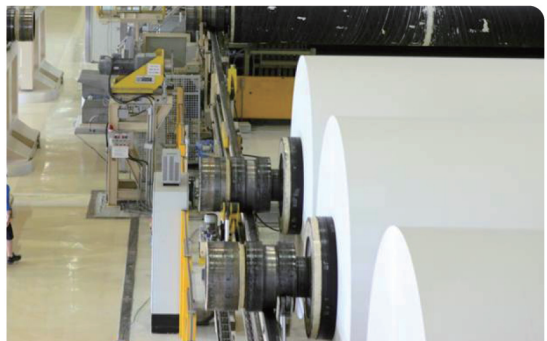
## Operation Principle

When the level switch mounted on the tank or other container is touched by medium, it compares the signal flowing from active sensing probe towards ground with reference RF signal. Since all material has unique dielectric constant (relative permittivity) and conductance value that are different from air, the impedance of the signal circuit is changed when medium touches the probe. This change causes a shift in phase of the RF signal. A phase difference between the active signal and reference signal causes the output circuitry to operate.

## Applications

- Ash storage tank for power generation process which requires high reliability
- Cement storage tank
- Pulp and paper industries
- Medium forming a material build-up on the sensor by the change of tank condition
- Powder and particle

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## Specification

### ► Compact Version

Model	HCC-96RF-C	HCC-96RF-CH	HCC-96RF-S
Process Connection	PT 1" SCREW		50A JIS 10K RF (std.)
Process Temperature	Max. 80°C	Max. 150°C	Max. 240°C Max. 300°C (opt.)
Process Pressure	Max. 20 kg/cm <sup>2</sup>		Max. 10 kg/cm <sup>2</sup>
Probe Length	300mm (std.)		800mm (std.)
Enclosure	Weather Proof (PBT: IP65, AL.C: IP66)	Weather Proof (IP66)	
Housing Material	PBT (std.) / AL.C (opt.)	AL.C (std.)	
Sensor Material	SUS 316L + TEFLON		SUS 316L + PPS SUS 316L + PEEK (opt.)
Cable Entry	PF 1/2" (F) (std.)		
Power Source	AC 90~240, 50/60Hz (std.), DC 24V (opt.)		
Output	1-DPDT Relay		
Contact Rating	AC 250V 5A, DC 30V 5A		AC 250V 5A, DC 30V 5A

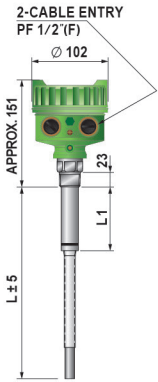
### ► Remote Version

Sensor			
Model	HCC-96RF-R	HCC-96RF-RH	HPC-96RF-R
Process Connection	50A JIS 10K RF (std.)		
Process Temperature	Max. 240°C Max. 300°C (opt.)	Max. 500°C	Max. 240°C
Process Pressure	Max. 10 kg/cm <sup>2</sup> (std.)	Max. 2 kg/cm <sup>2</sup> (std.)	Max. 10 kg/cm <sup>2</sup>
Probe Length	800mm (std.)		
Enclosure	Weather Proof (IP66)	Weather Proof (IP66)	Ex-Proof (Ex d IIC T6, IP65)
Housing Material	Aluminum		
Sensor Material	SUS316L+PPS SUS316L+PEEK (opt.)	SUS 316L + CERAMIC	SUS 316L + PPS
Cable Entry	PF 3/4" (F) (std.)		
Combination Unit			
Model	HLC-96RF-R	HLC-96RF-RA	
Installation	Local Mounting	Rack Mounting	
Enclosure	Weather Proof (IP66)	-	
Power Source	AC110 or 220V(std.), AC230V(opt.)	AC 90V ~ 240V	
Output	1-DPDT Relay		
Contact Rating	AC 250V 5A, DC 30V 5A		

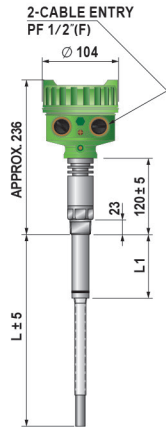
► **Order Code** can be printed at our website ([www.hitrol.com](http://www.hitrol.com))

# Dimension

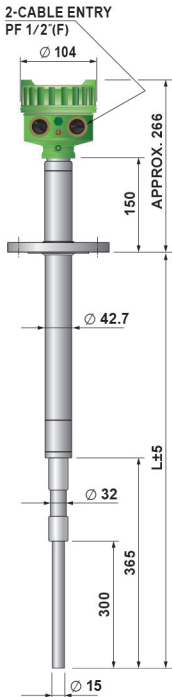
## HCC-96RF-C



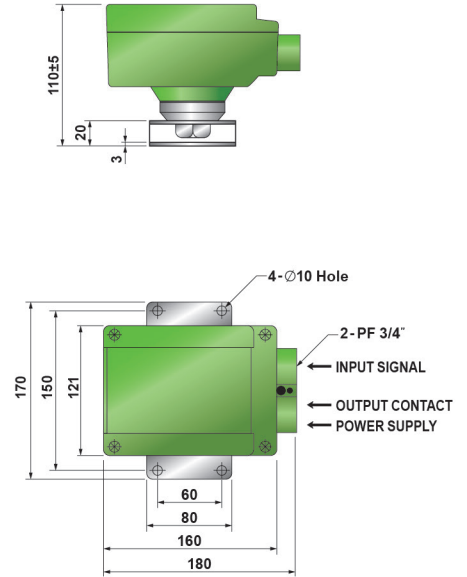
## HCC-96RF-CH



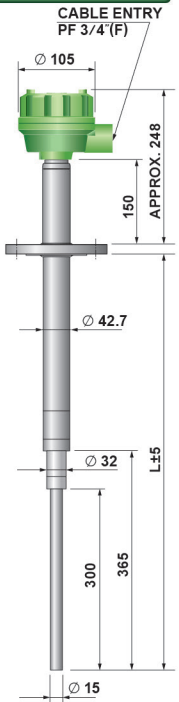
## HCC-96RF-S



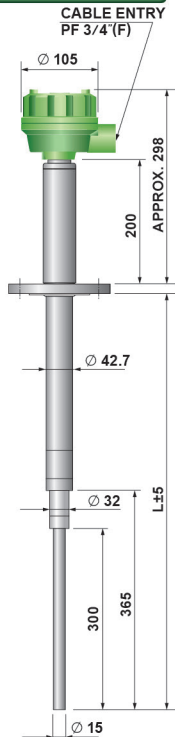
## HLC-96RF-R (Local Type)



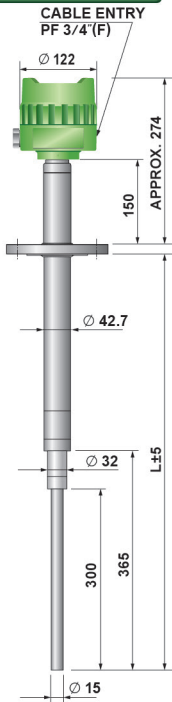
## HCC-96RF-R



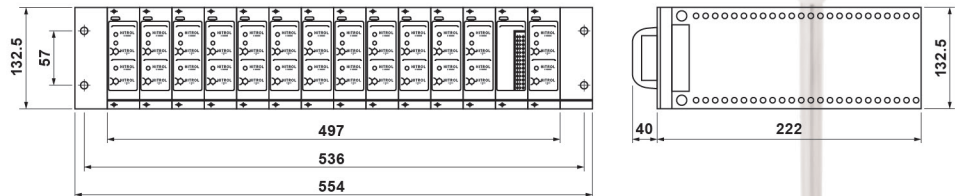
## HCC-96RF-RH



## HPC-96RF-R



## HLC-96R-RA (19" Rack Type)



■ Actual product may have a tolerance slightly.

## Installation

- Below recommendation should be considered when installation.

HCC(HPC)-96RF Series is generally used for high or low alarm with an installation on the side or top of the tank and can be also applied to metallic or synthetic resin tank because the ground electrode is installed in the level switch and measurement is not affected by tank material.

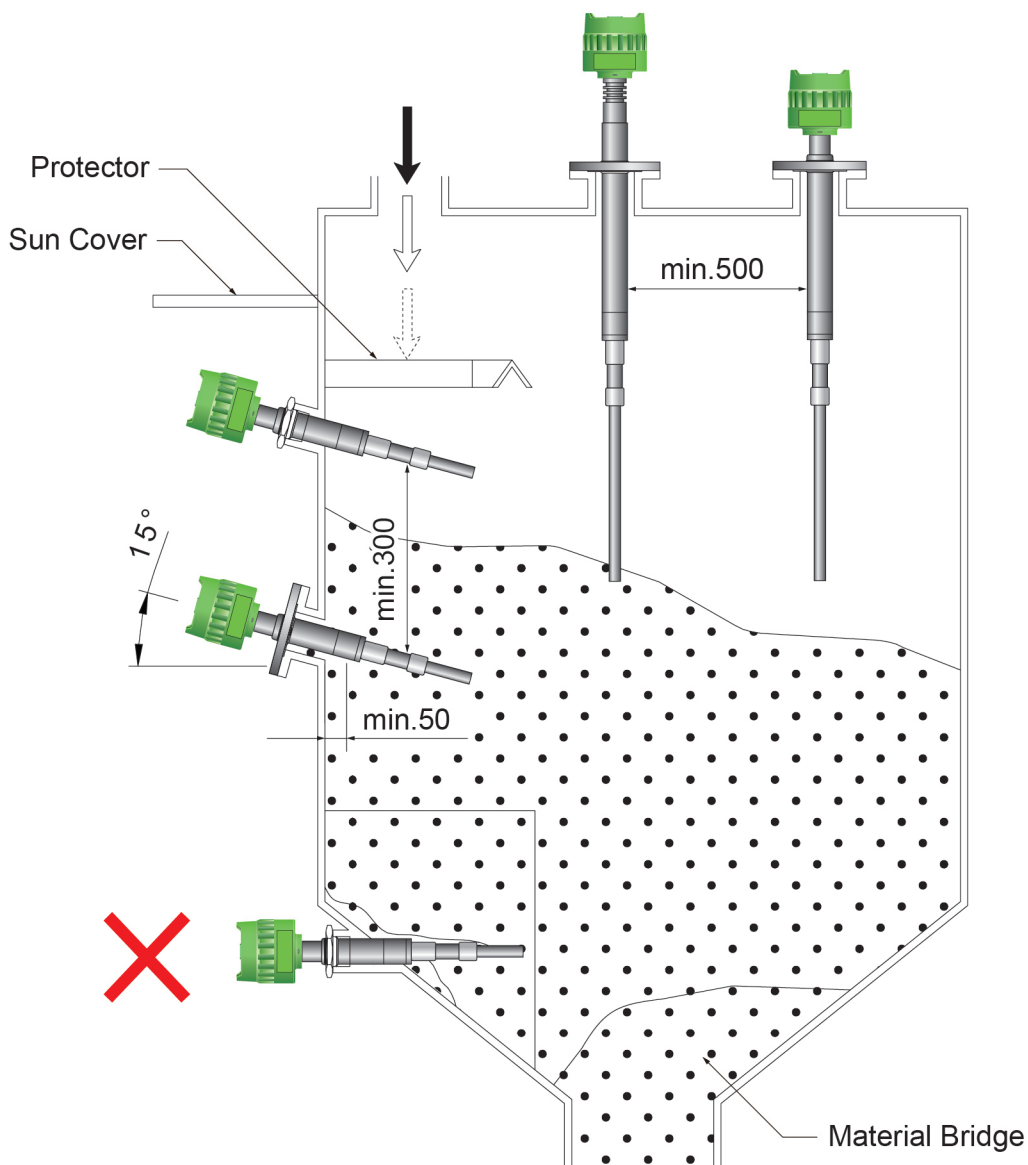
### 1. Top Mounting Installation

When the installation to the tank nozzle, the compensation electrode should be located, min. 100mm inside of tank. And also, sensing probe should be installed far over min. 500mm from tank side wall.

### 2. Side Mounting Installation

If the medium has a property of making a heavy precipitate layer, the level switch should be installed slopingly, about 45 degrees.

And also, the protector should be installed at least 200mm above from the probe in order to protect the probe if the medium has high density.



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01 Prevention of malfunction caused by material build-up on the sensor

02 Applicable to solid and powder in high temperature

03 Easy installation and calibration



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\* Image of the product is just for reference only. Design of product can be changed for upgrade without notice.