

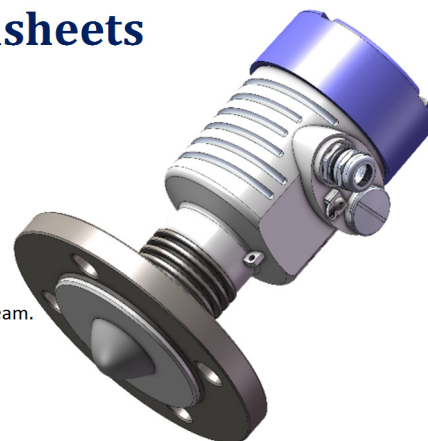
## ANL-9080N50 regular version

# Non-contact Radar Level Transmitter Datasheets

Version V.2024

## Characteristics

- 80GHz Frequency FMCW radar system.
- Measurement application in liquids, solids.
- Chemical industry reaction tanks, reactors. Stirring and corrosive environment applications, also in steam.



## Specifications

ANL-9080N50	Lens material PTFE		Lens material PEEK	N60 (cool version)
<b>Max. measuring range</b>	40M for liquid, 30M for solids/powder		40M for liquid, 30M for solids/powder	40M for liquid, 30M for solids/powder
<b>Tx/Rx frequency</b>	Tx/Rx frequency 76.2 to 80.2GHz Dynamic FM Sweep Bandwidth 1~4GHz (The adjustment FM range can be customized according to the ISM requirements of the customer's region)			
<b>Near blind spot</b>	< 100mm from the flange down surface			
<b>Meas. Principle</b>	FMCW Radar System			
<b>Lens Antenna Medium</b>	PTFE Φ50mm		PEEK Φ50mm	PEEK Φ50mm
<b>Antenna beam / Gain</b>	Beam angle 5°/ Gain 28.9dB		Beam angle 5°/ Gain 29.3dB	
<b>Meas. Resolution</b>	0.1mm (<10m range)			
<b>Meas. Accuracy</b>	±2 mm / ±1 mm (Precision Requirements Edition)			
<b>Ambient temperature</b>	-40 ... +85 °C			-60 ... +105 °C
<b>Process temperature</b>	-40°C ... +180°C/200°C *		-60°C ... +180°C/200°C *	
<b>Process pressure</b>	-0.8 ~ +0.8MPa *		-1.0 ~ +5.0MPa * <small>(* Note that the detailed pressure range is described in the specific antenna type.</small>	
<b>Process connection</b>	Flanges >= DN50 or Thread G2-¼ or NPT			
<b>Signal output</b>	4-20 mA/HART7 2-wire, 4-20 mA/HART7 4-wire, Profibus PA / DP, Ethernet-APL, Modbus protocol 4-wire			
<b>Variables influencing meas. accuracy</b>	Specifications for the digital measured value Temperature drift - Digital output: ±1mm/10K relating to the max. measuring range or max. 15 mm Additional deviation through electromagnetic interference acc. to EN-61326: < ±10 mm Specifications apply also to the current output Temperature drift - Current output: ±0.02%/10K relating to the 16.7 mA span or max. ±0.2% Deviation in the current output due to digital/analogue conversion Non-Ex and Ex-ia version: < ±1µA; Ex-d-ia version: < ±1µA Additional deviation through electromagnetic interference acc. to EN-61326: < ±150µA			
<b>Indication/Adjustment (LOI)</b>	1. 160x80 LCD FSTN RGB backlight monitor adapter with keyboard module, operation Temp. -20°C ... 70°C. or 128x64 OLED monitor adapter with keyboard module, operation Temp. -55°C ... 80°C. (option) or 230x240 LCD TFT colors monitor adapter with keyboard module, operation Temp. -20°C ... 70°C. (option only for 4-wire system) 2. (APP) Radar MobileManager via BT wireless connection 3. (PC software) Radar PCManager /or Via a PC with PACTware/DTM (an interface converter AiW-305 USB CONNECT is required)			
<b>Power supply</b>	16V ~ 40 VDC / Load resistor ≈ 600Ω			
<b>Wireless communication</b>	Bluetooth 5.0 (Bluetooth 4.0 LE compatible), communication range 40m, in rainy day 20m			
<b>Approvals</b>	CLeX/CNEx: Ex ia IIC T6 Ga IP67; Ex d IIC T6 Gb IP67 // SIL2 (No. 66230714.CSETW60)			
<b>Housing</b>	Single chamber / Double chamber, Aluminum / Stainless steel / Plastic PBT, IP66 / IP67 / IP68			
<b>Applications</b>	Liquids, solids, powder, and stirring and corrosive environment applications			

SERVICE CONTACT: 86-13799977915, 86-18965063391(TECHNICAL SUPPORT), 86-18106067295(AFTER SALE SERVICE)

ALTHOUGH WE HAVE RECONCILED THE CONTENTS OF THE MANUAL WITH DESCRIPTION OF INSTRUMENT, THERE MAY STILL BE CHANGES WE CANNOT ENSURE THAT IT IS FULLY CONSISTENT. THE CONTENT WILL BE CHECKED AND CORRECTED IN AN ORDERLY, AND THE ERRATA WILL BE IN SUBSEQUENT RELEASES. WE WELCOME USERS TO MAKE VARIOUS SUGGESTIONS FOR IMPROVEMENT. [TECHNICAL DATA SUBJECT TO CHANGE]

## Dimensions

The following dimensional drawings represent only an extract of all possible versions. Detailed dimensional drawings can be downloaded at <https://www.chinasimba.com/downloads.html> "Drawings".

**Note :**  
 The lens antenna material is different, and the lens wheelbase is also different.

Lens Antenna PTFE : 41.0 mm  
 Lens Antenna PEEK : 35.0 mm

ANL-9080N50-1 Thread G2-1/4 / PTFE/PEEK / Single Chamber

**Note:**  
 Cable Entry: (option) 1/2 inch NPT(F) along with SS double compression gland.

PTFE天线

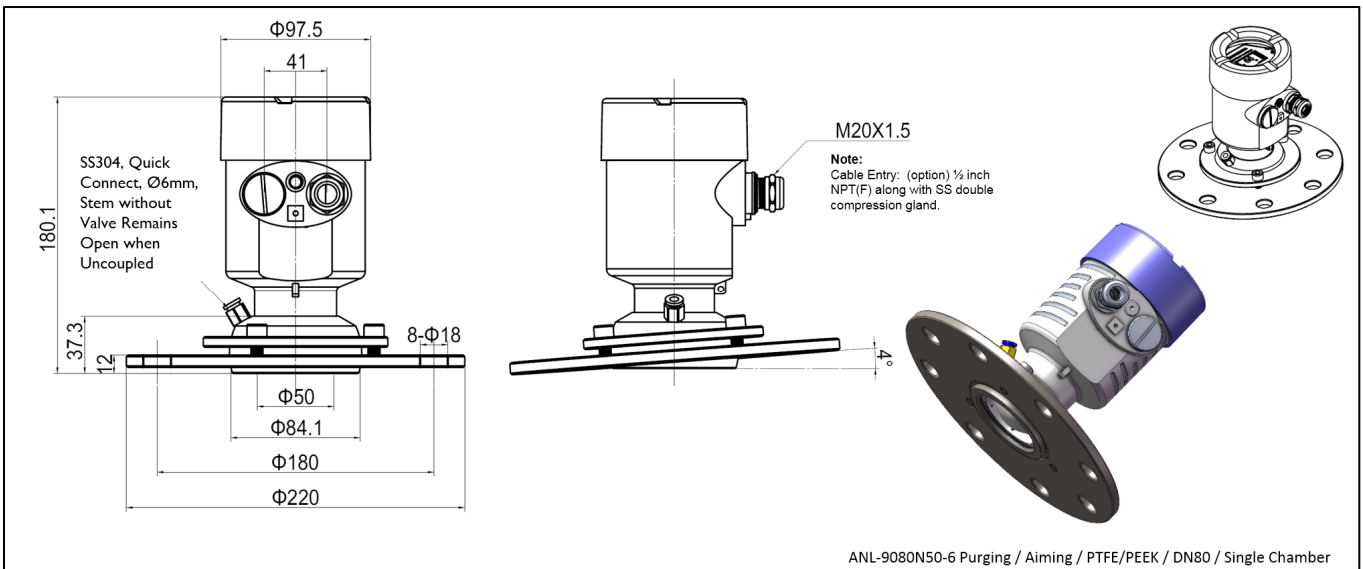
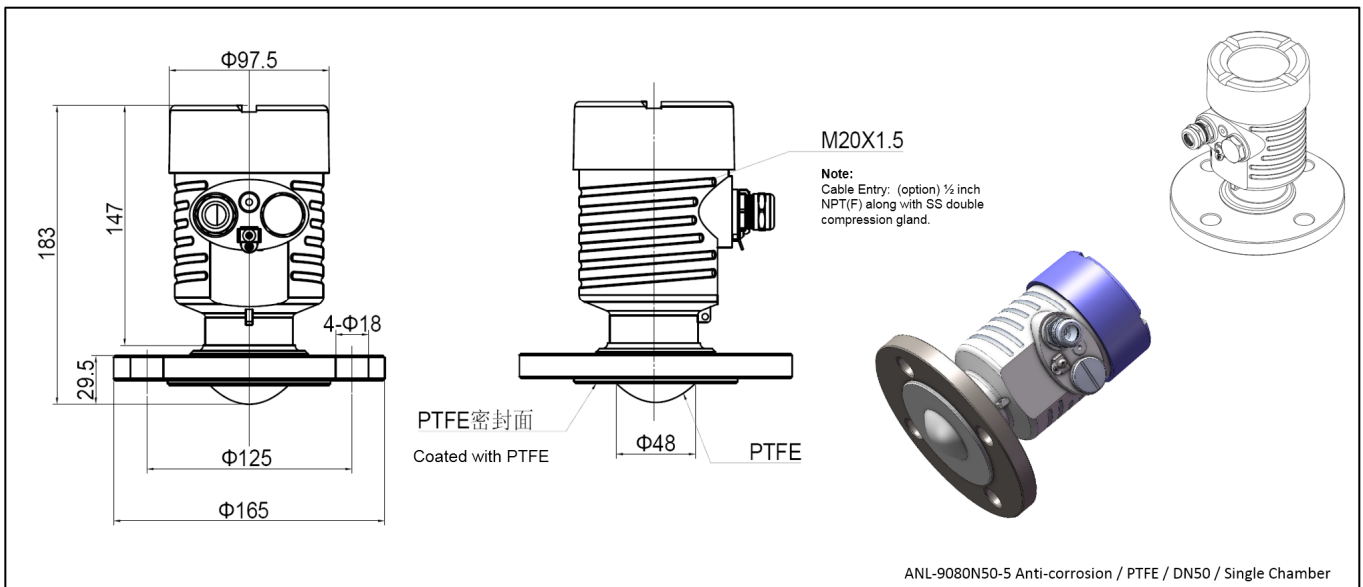
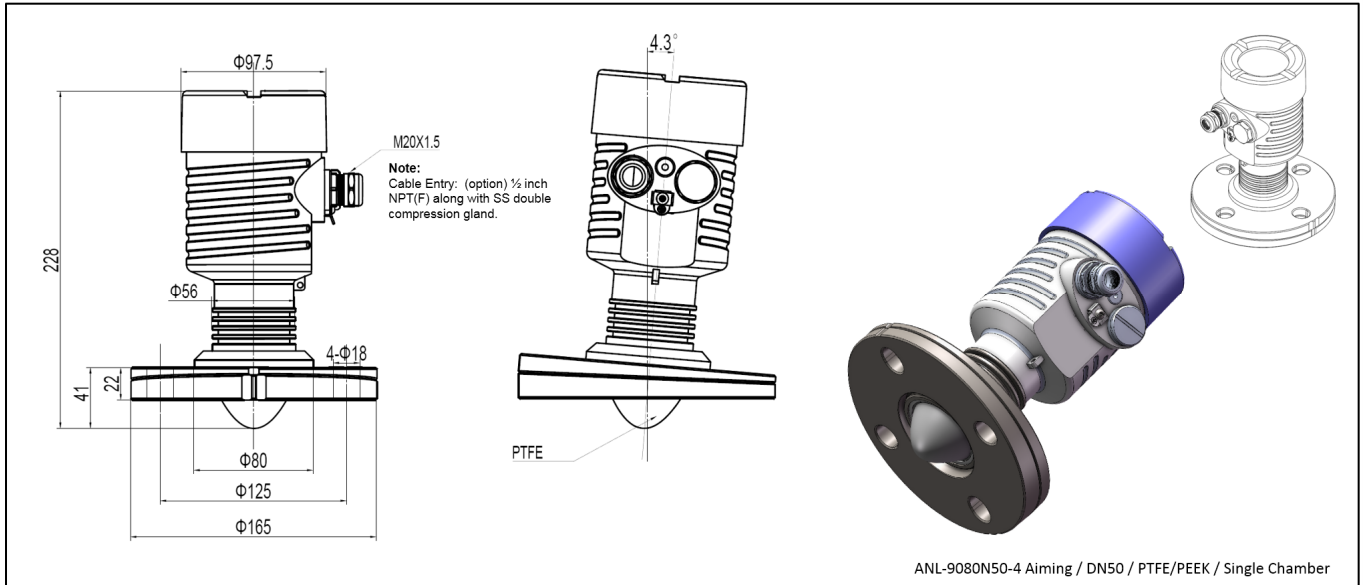
ANL-9080N50-2 DN50 / PTFE/PEEK / Single Chamber

**Note:**  
 Cable Entry: (option) 1/2 inch NPT(F) along with SS double compression gland.

PTFE密封面  
 Coated with PTFE

PTFE透镜

ANL-9080N50-3 Anti-corrosion / DN50 / PTFE / Single Chamber



Technical drawing of ANL-9080N50-7 Purging / DN50 / PTFE/PEEK / Single Chamber. Dimensions include: Total height 185.6, top diameter  $\Phi 97.5$ , base diameter  $\Phi 165$ , and mounting holes  $4-\Phi 18$ . A side view shows a height of 72.8. A 3D rendering shows the valve with a blue top cap and a stainless steel body.

Note: Cable Entry: (option) 1/2 inch NPT(F) along with SS double compression gland.

SS304, Quick Connect,  $\Phi 6$ mm, Stem without Valve Remains Open when Uncoupled

M20X1.5

ANL-9080N50-7 Purging / DN50 / PTFE/PEEK / Single Chamber

Technical drawing of ANL-9080N50-7 Purging / DN50 / PTFE/PEEK / Double Chamber. Dimensions include: Total height 187.7, top diameter  $\Phi 97.5$ , base diameter  $\Phi 165$ , and mounting holes  $4-\Phi 18$ . A side view shows a height of 105. A 3D rendering shows the valve with a blue top cap and a stainless steel body.

SS304, Quick Connect,  $\Phi 6$ mm, Stem without Valve Remains Open when Uncoupled

M20X1.5

ANL-9080N50-7 Purging / DN50 / PTFE/PEEK / Double Chamber

Technical drawing of ANL-9080N50-8 Anti-corrosion / DN50 / PTFE / Single Chamber. Dimensions include: Total height 185.6, top diameter  $\Phi 97.5$ , base diameter  $\Phi 165$ , and mounting holes  $4-\Phi 18$ . A side view shows a height of 72.8. A 3D rendering shows the valve with a blue top cap and a stainless steel body.

Note: Cable Entry: (option) 1/2 inch NPT(F) along with SS double compression gland.

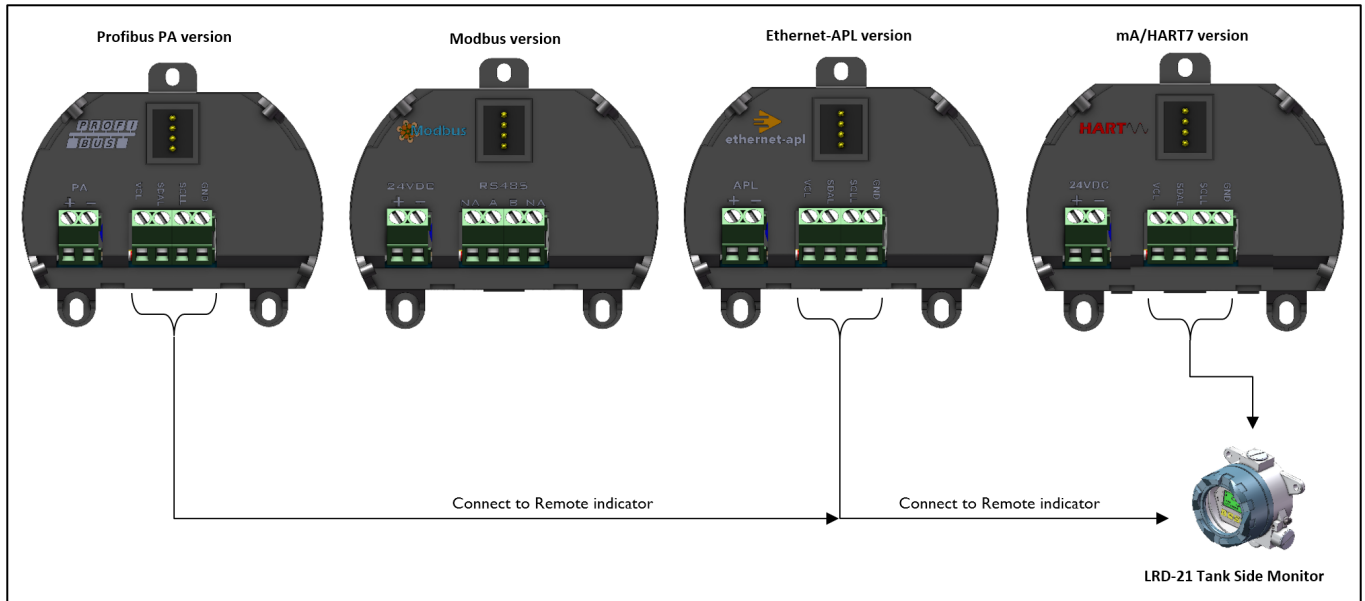
PTFE Coated with PTFE

Here was Blocked

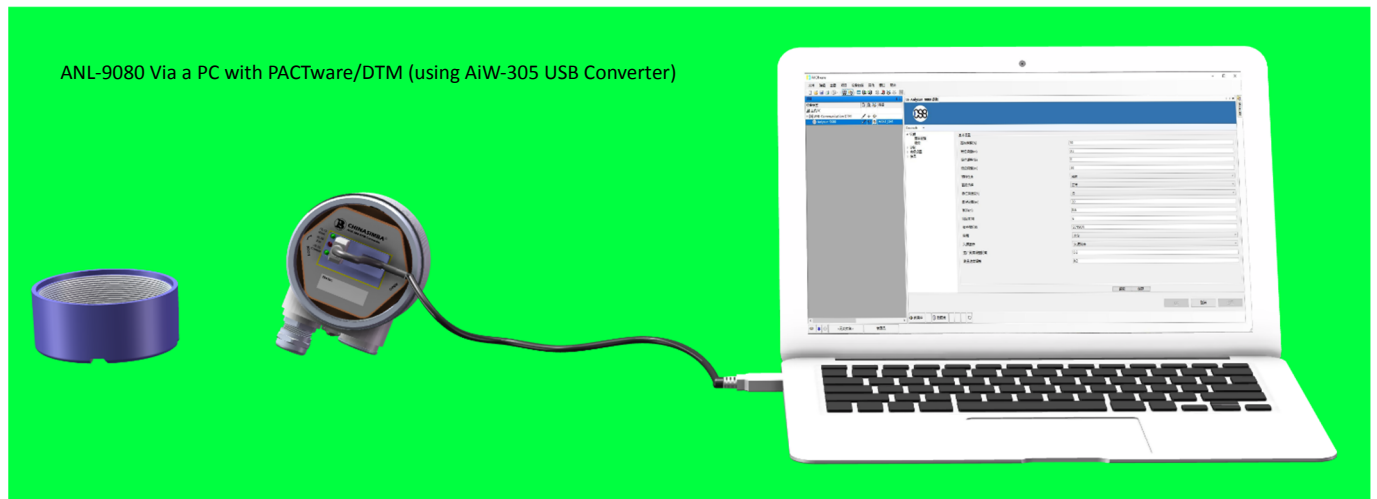
M20X1.5

ANL-9080N50-8 Anti-corrosion / DN50 / PTFE / Single Chamber

## Remote indicator connects for ANL-9080



## DTM Adapter for ANL-9080



## AiW-305 USB Converter Adapter



## Remote programmer cum Indicator Adapters

### Remote indicator with HART compatible (RDM-25)

**Note :**

- ①. RDM is a HART compatible remote indicator. It can be possible to configure the radar level transmitter using HART communicator from remote indicator.
- ②. Wall-mounted fixing holes.
- ③. Cable Entry: (option) ½ inch NPT(F) along with SS double compression gland.
- ④. Housing: Die Cast Aluminum with caustic and corrosion protection paint.

### Remote indicator via Serial communication (LRD-21)

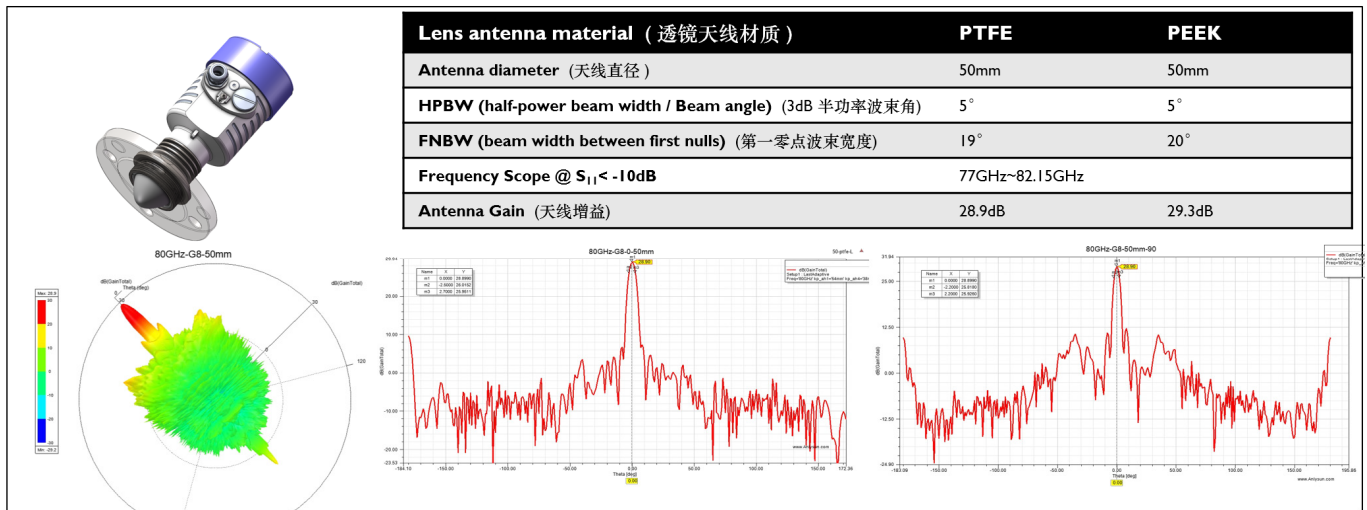
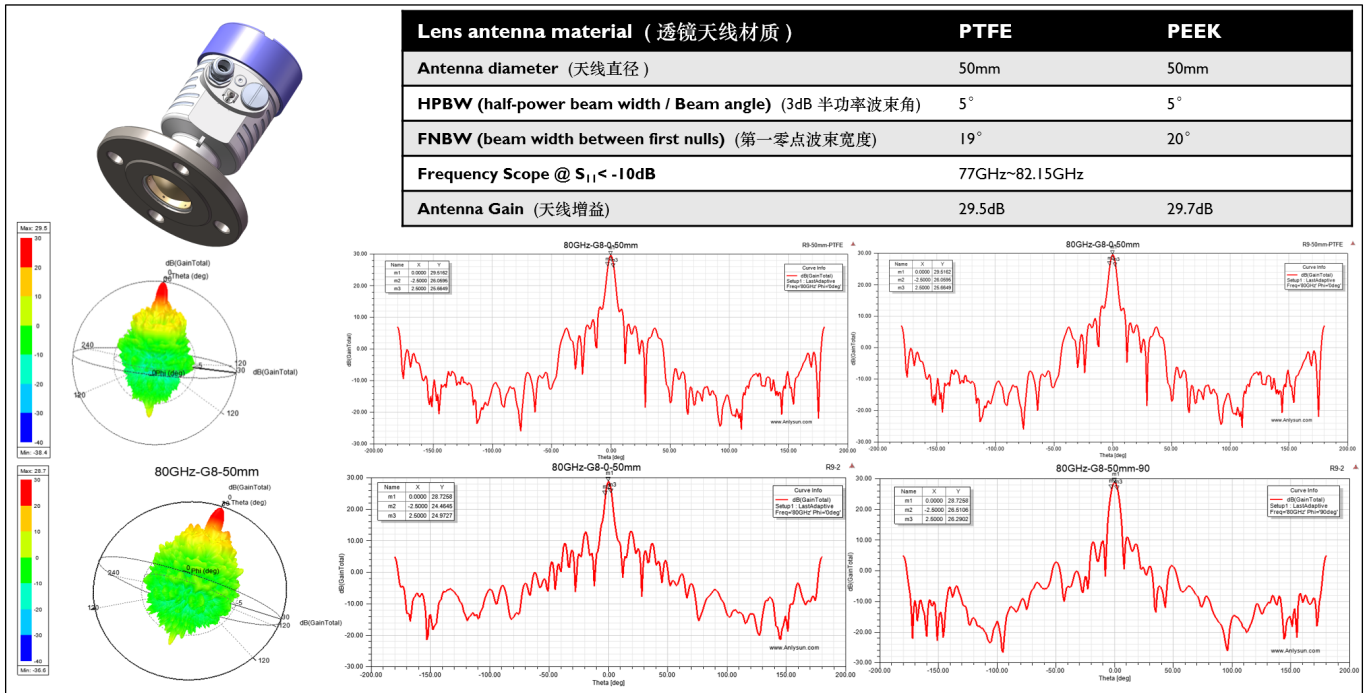
**Note :**

- ①. LRD is a serial communication remote indicator. It can be possible to configure the radar level transmitter LOI (Local Operator Interface) from remote indicator.
- ②. Wall-mounted fixing holes.
- ③. Cable Entry: (option) ½ inch NPT(F) along with SS double compression gland.
- ④. Housing: Die Cast Aluminum with caustic and corrosion protection paint.

### Remote indicator via Bluetooth communication

ANL9080 radar level transmitters (with Bluetooth function) can be connected to mobile phone through Bluetooth wireless system. The mobile phone needs to install the RadarMobileManager APP. This is a free registered APP (Android and IOS etc.) software, which can be downloaded and installed directly in major APP Stores, or please contact the relevant product suppliers.

## The Radar Antenna Specification of the ANL-9080N50



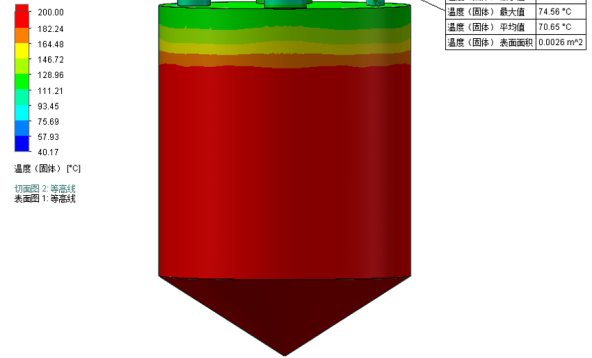
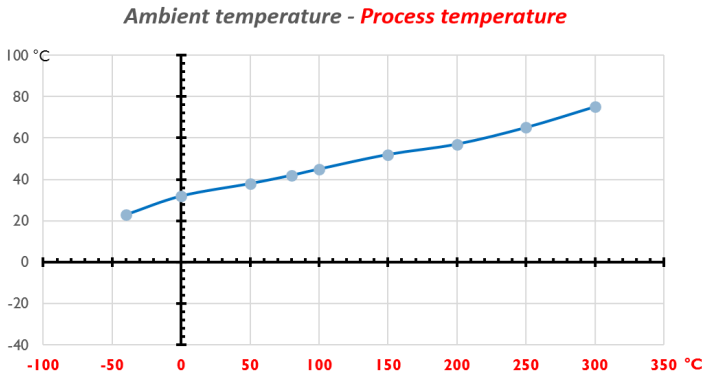
## Thermal simulation graph for the ANL-9080N50

Start Ambient temperature: 25°C  
 Initial device housing Temp.: 35°C  
**Material properties in tank:** Solid, constant heat source  
**Ambient wind speed:** level I wind, 0.3m/s, soft wind  
**Surface of tank and device:** Solar radiation and stainless steel absorbing wall  
**Process connection:** Flange height ≥40 cm from the material level in tank (including nozzle height)

**Model simulation analysis:**  
 This is an analysis of setting up to the maximum allowable temperature value of the material in the tank, when the maximum temperature of the surface of the device shell is maintained at 65 °Celsius degrees. It's a dynamic thermal equilibrium to be reached.



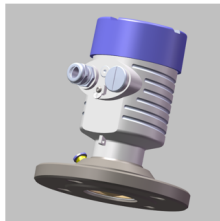
### The Medium Max.Temp. @ inside tank: 200 °C



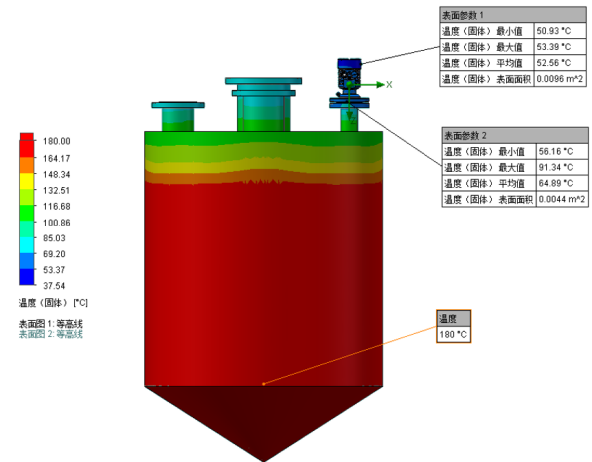
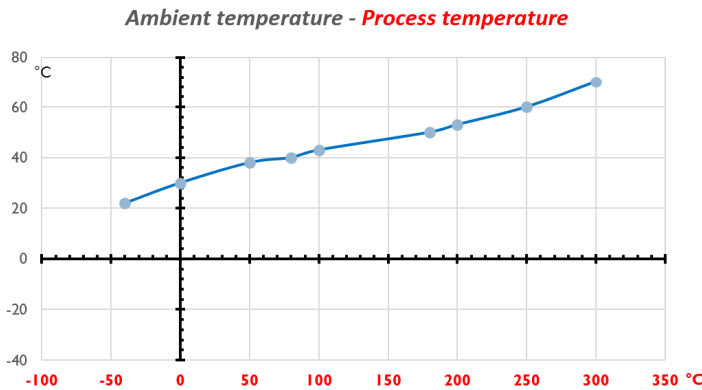
ANL-9080N50-2

Start Ambient temperature: 25°C  
 Initial device housing Temp.: 35°C  
**Material properties in tank:** Solid, constant heat source  
**Ambient wind speed:** level I wind, 0.3m/s, soft wind  
**Surface of tank and device:** Solar radiation and stainless steel absorbing wall  
**Process connection:** Flange height ≥40 cm from the material level in tank (including nozzle height)

**Model simulation analysis:**  
 This is an analysis of setting up to the maximum allowable temperature value of the material in the tank, when the maximum temperature of the surface of the device shell is maintained at 65 °Celsius degrees. It's a dynamic thermal equilibrium to be reached.



### The Medium Max.Temp. @ inside tank: 180 °C



ANL-9080N50-7



## Aluminum housing

Technical drawings and 3D models for Aluminum housing components. Dimensions are provided in millimeters (mm) and inches (in).

- 1800-062-000**: Double chamber, Double chamber. Housing weight: 1.42Kg /±0.02.
- 1800-061-000**: Single chamber, Single chamber. Housing weight: 0.98Kg /±0.02.
- 1800-061-100**: Single chamber/ orange color, Single chamber/ orange color. Housing weight: 0.93Kg /±0.02.

## Stainless steel housing

Technical drawings and 3D models for Stainless steel housing components. Dimensions are provided in millimeters (mm) and inches (in).

- 1800-062-100**: Double chamber/precision casting. Housing weight: 2.64Kg /±0.02.
- 1800-171-000**: Single chamber/precision casting. Housing weight: 2.08Kg /±0.02.
- 1800-171-100**: Single chamber/electropolished. Housing weight: 2.06Kg /±0.02.

## Plastic housing

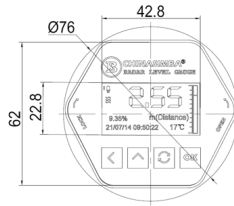
Technical drawings and 3D model for Plastic housing component. Dimensions are provided in millimeters (mm) and inches (in).

- 1800-172-000**: Housing weight: 0.3Kg /±0.02.

## Indication/Adjustment LOI Adapter

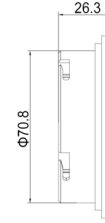
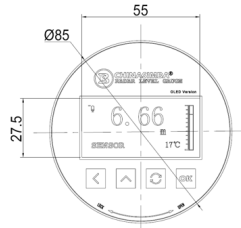
### 160x80 LCD RGB Backlight Monitor Adapter

Display type: FSTN  
 View direction: 6 o'clock  
 Operation temperature : -20°C ... 70°C



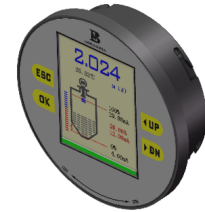
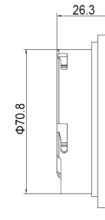
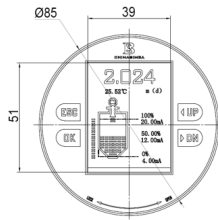
### 128x64 OLED graphic Monitor Adapter

Display type: OLED  
 View direction: 180 o'clock  
 Operation temperature : -55°C ... 80°C



### 320x240 LCD TFT colors Monitor Adapter

Display type: 2.4" TFT 65K/262K colors  
 View direction: 6 o'clock  
 Operation temperature : -20°C ... 70°C



For more information contact your regional sales representative.

[overseas@chinasimba.com](mailto:overseas@chinasimba.com)

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