

## Radar sensor for continuous level measurement of solids

PROCESS MONITORING SYSTEMS FOR SOLIDS

### Product Information



#### FEATURES:

- **80 GHz All-round sensor**
- Continuous measurement
- Also under difficult process conditions
- Can be used on a wide range of different materials
- For level measurement in vessels up to 120 m height



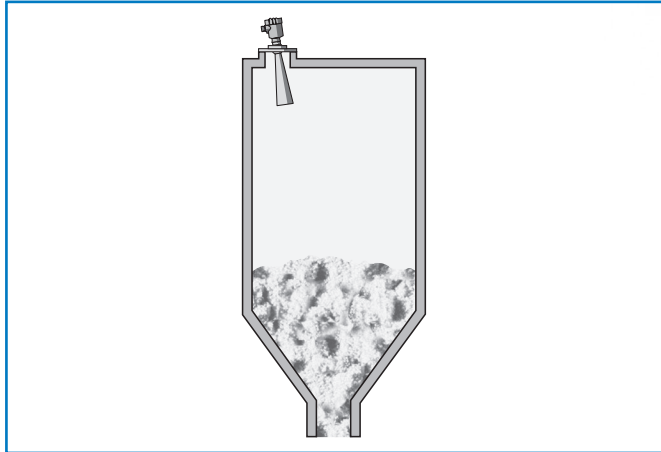
certified to **ATEX**

# TECHNOLOGY

## APPLICATION

The Nico 120 radar sensor has been designed to continuously measure the level of materials in storage vessels under difficult process conditions.

It can be used on a wide range of different materials having varying particle sizes and compositions.



The measurement is unaffected by dusty atmospheres, obstructions or temperature variations. The Nico 120 measuring range is 120 metres.

The good signal focus ensures that vessel fittings and encrustations on the walls does not affect the measurement.



## FUNCTION

Extremely short microwave pulses are transmitted via the antenna system, to the material to be measured, the pulses are reflected by the surface of the material, and received back to the antenna system.

The time taken between the transmission of the pulses and receiving the pulses, is proportional to the level in the vessel.

Thanks to the very good signal focussing a simple setup and reliable measurement is ensured.

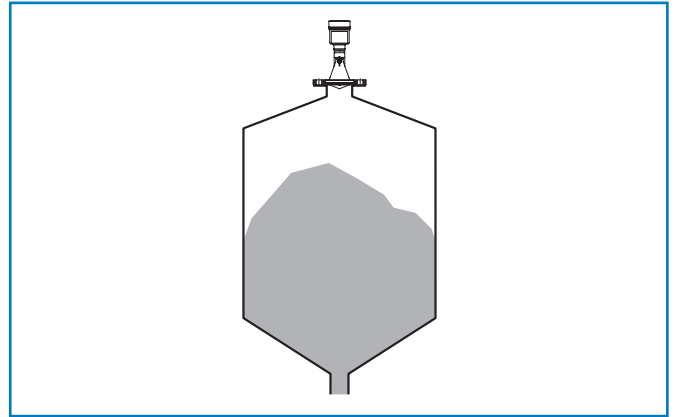
Because the pulses are travelling so fast, and difficult to process, a procedure is adopted to allow for the processing of the pulses. The pulses are transmitted in the K-band frequency range, where its usage is time proven.

The transmitted power is well below the IEC specifications. There is no need to calibrate the vessel whether empty or full.

## ASSEMBLY AND INSTALLATION

### Measurements with flange installation

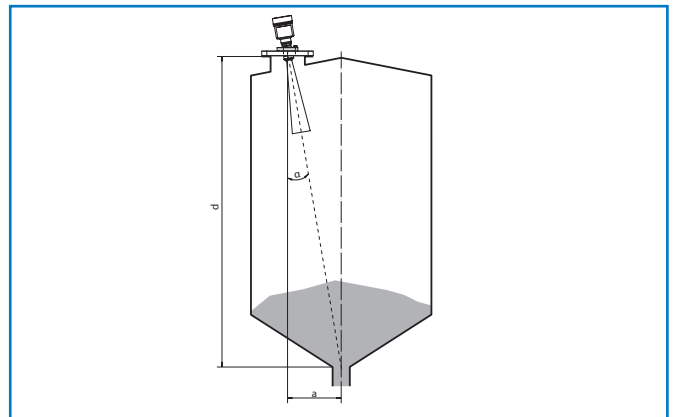
The Nico 120 is supplied with a DN 80 flange, which is installed on the vessel using an identical flange.



### Measurements using the pivot-mounted bracket

If it is not possible to install the sensor in the centre of the silo, it can be directed towards the centre using an optional pivot-mounted bracket.

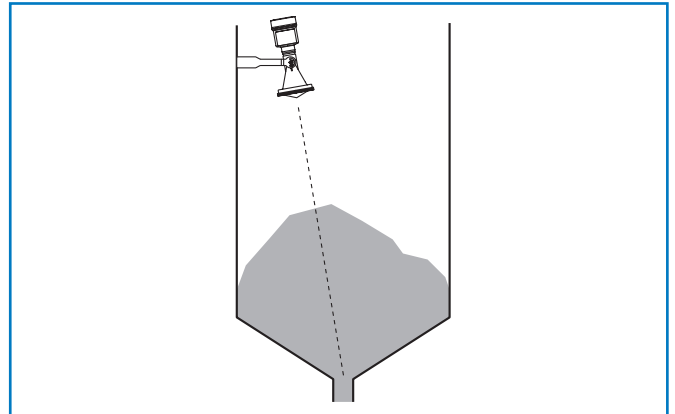
The illustration below provides a simple overview of how to determine the required angle.



### Measurements with installation arm

The installation arm allows the sensors to be installed easily on the silo wall or roof.

This is a very simple and effective method to direct the sensor towards the surface of the bulk goods, particularly for open silos.



## OPERATION

The display and control module must be used to calibrate the sensor.

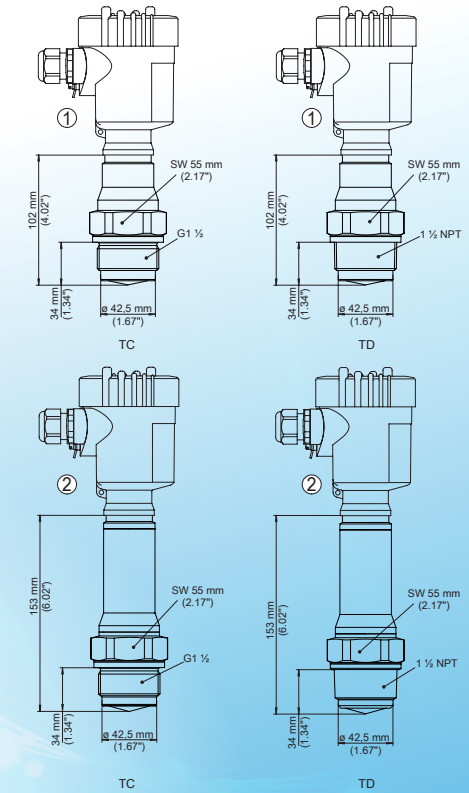
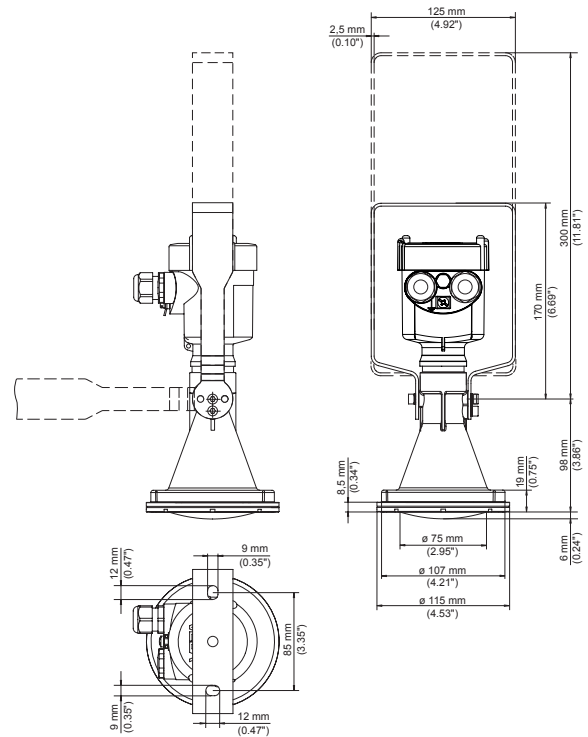
The plug-in module is used to display measurements and for control and diagnostic purposes. It features an illuminated display and appropriate control keys.



## TECHNICAL DATA

### Sensor

Measuring range - Distance	120 m
Process temperature	-40 ... 200 °C
Process pressure	-1 ... 20 bar
Accuracy	± 5 mm / ± 0.2"
Version	with plastic horn antenna ø 80 mm Metal jacketed lens antenna
Materials, wetted parts	316L PP PEEK
Threaded connection	G1½, 1½ NPT
Flange connection	≥ DN80, ≥ 3"
Seal material	EPDM FKM
Housing material	Aluminium
Protection rating	IP 66/IP 68 (0.2 bar) IP 66/IP 67 IP 66/IP 68 (1 bar)
Output	Profibus PA Foundation Fieldbus 4 ... 20 mA/HART - two-wire Modbus 4 ... 20 mA/HART - four-wire
Ambient temperature	-40 ... 80 °C



Nico 120\_EV\_130622 - ENVEA has a policy of continuous improvement of its products and we reserve the right to update or modify specifications without notice.

