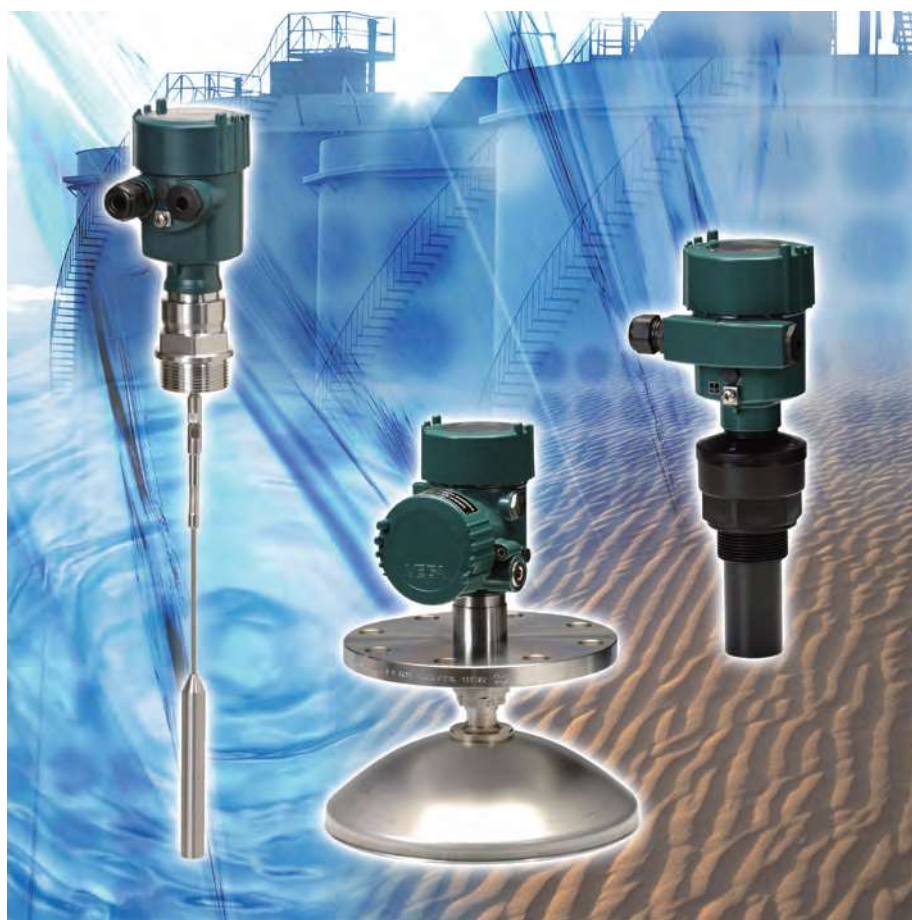


# LEVEL Meters

**Radar**  
**Guided Wave Radar**  
**Ultrasonic**

**PULS 60Y series**  
**FLEX 80Y series**  
**SON 60Y series**



**PULS 60Y series**  
**FLEX 80Y series**  
**SON 60Y series**

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### PULS

#### Non-contact measurement under all process conditions

#### Measuring principle

Extremely short microwave impulses are emitted by the antenna system to the measured product, reflected by the product surface and received again by the antenna system. The time from emission to reception of the signals is proportional to the level in the vessel. A special time spreading procedure enables the reliable and precise measurement of the extremely short signal running times. The radar sensors are available in different C and K-band frequency ranges, this ensures the optimum solution for the different applications. The proven ECHOFOX signal processing analysis the reflection in the vessel based on long-standing experience and detects the level signal reliably. The adaptation to the respective application is really simple through the selection of the application parameters.

### Applications

#### Level in liquids

Two different emitting frequencies are available for these applications. The compact, high frequency K-band sensors PULS 61Y, 62Y and 63Y are particularly suitable for applications where high accuracy is required. Since even with small antenna sizes, an excellent signal focusing is reached, hence mounting on small mounting openings is possible. The low frequency C-band sensors PULS 65Y and 66Y can penetrate foam and strong condensation and are thus particularly suitable for arduous process conditions. Unaffected by steam, gas composition, pressure and temperature changes, radar sensors detect the product surface of different products reliably and ensure thus an optimum process.



#### Level in bulk solids

The high frequency sensors PULS 67Y and 68Y in K-band technology are used for these applications. Thanks to the very good focusing of the signals, the level is detected reliably independent of silo installations or buildup on the vessel wall. A high sensitivity electronics optimized to the requirements of the bulk solids measurement, enables a reliable level measurement of different products up to a distance of 75 m. The measuring principle is unaffected by strong dust generation, filling noise, air turbulences by pneumatic filling and temperature fluctuations and ensures a reliable and maintenance-free operation of the systems. The application area covers applications in the food processing industry and the plastic processing up to the steel generation and mineral rock processing.



## Overview

Instrument type		Measuring range Accuracy	Process fitting	Process temperature	Process pressure
<b>PULS 61Y</b> Liquids in small vessels under simple process conditions		up to 35 m, +/- 2 mm	Thread G1½, 1½ NPT, mounting strap, compression flanges from DN 80, 3"	-40 ... +80 °C	-1 ... +3 bar (-100 ... +300 kPa)
<b>PULS 62Y</b> Storage containers, reactors and process vessels with various process conditions		up to 35 m, +/- 2 mm	Thread from G1½, 1½ NPT, flanges from DN 50, 2"	-196 ... +450 °C	-1 ... +160 bar (-100 ... +16000 kPa)
<b>PULS 63Y</b> Aggressive liquids or with hygienic requirements		up to 35 m, +/- 2 mm	Hygienic fittings, boltings, flanges from DN 50, 2"	-196 ... +200 °C	-1 ... +16 bar (-100 ... +1600 kPa)
<b>PULS 65Y</b> Liquids under simple process conditions		up to 35 m, +/- 8 mm	Thread from G1½, 1½ NPT, flanges from DN 50, 2"	-40 ... +150 °C	-1 ... +16 bar (-100 ... +1600 kPa)
<b>PULS 66Y</b> Storage tanks and process vessels with different process conditions		up to 35 m, +/- 8 mm	Flanges from DN 50, 2"	-60 ... +400 °C	-1 ... +160 bar (-100 ... +16000 kPa)
<b>PULS 67Y</b> Bulk solids for smaller to average vessel heights		up to 15 m, +/- 2 mm	Mounting strap, compression flanges from DN 80, 3"	-40 ... +80 °C	-1 ... +2 bar (-100 ... +200 kPa)
<b>PULS SR 68Y</b> Bulk solids for average to large vessel heights		up to 30 m, +/- 2 mm	Thread G1½, 1½ NPT, flanges from DN 50, 2"	-40 ... +250 °C	-1 ... +100 bar (-100 ... +10000 kPa)
<b>PULS 68Y</b> Bulk solids for average to large vessel heights		up to 75 m, +/- 2 mm	Thread G1½, 1½ NPT, flanges from DN 50, 2"	-196 ... +450 °C	-1 ... +160 bar (-100 ... +16000 kPa)
<b>PULS 69Y</b> Bulk solids for smaller or very large vessels		up to 120 m, +/- 5 mm	Mounting strap, compression flange from DN 80, 3", flanges from DN 80, 3"	-40 ... +200 °C	-1 ... +3 bar (-100 ... +300 kPa)

## PULS 61Y

### Radar sensor for continuous level measurement of liquids

#### Application area

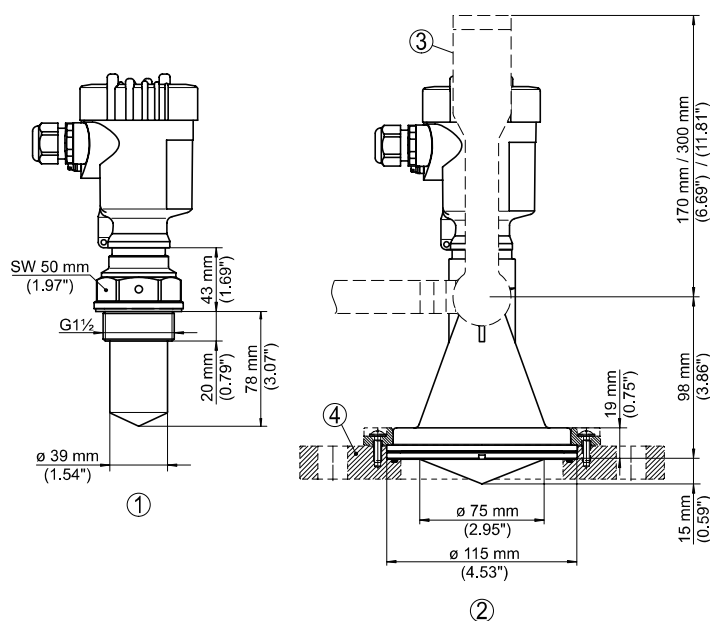
The PULS 61Y is a radar sensor for continuous level measurement of liquids under simple process conditions. The PULS 61Y is an economical solution through its simple and versatile mounting possibilities. The encapsulated antenna system ensures a maintenance-free operation.

#### Your benefit

- Maintenance-free operation through non-contact measuring principle
- High plant availability, because wear and maintenance-free
- Exact measuring results independent of process conditions

#### Technical data

Measuring range:	up to 35 m
Process fitting:	thread G1½, 1½ NPT
	mounting strap
	compression flanges from DN 80, 3"
	adapter flanges from DN 100, 4"
Process temperature:	-40 ... +80 °C
Process pressure:	-1 ... +3 bar (-100 ... +300 kPa)
Accuracy:	+/- 2 mm
SIL qualification:	optionally up to SIL2



- 1 Version with encapsulated antenna system (ø 40 mm)
- 2 Version with plastic horn antenna (ø 80 mm)
- 3 Mounting strap
- 4 Adapter flange

For further information (process fittings, options and others), please contact Yokogawa.

## Approval

<b>XX</b>	without .....
<b>XM</b>	Ship approval .....
<b>CX</b>	ATEX II 1G, 1/2G, 2G EEx ia IIC T6 .....
<b>CM</b>	ATEX II 1G, 1/2G, 2G EEx ia IIC T6 + Ship approval .....
<b>CI</b>	IEC Ex ia IIC T6 .....
<b>DX</b>	ATEX II 1/2G, 2G EEx d ia IIC T6 .....
<b>DI</b>	IEC Ex d ia IIC T6 .....

\* For FM and CSA, please contact Yokogawa.

## Version / Material / Process temperature

<b>A</b>	with encapsulated horn antenna (ø40mm) / PVDF / -40...+80°C .....
<b>B</b>	with plastic horn antenna (ø80mm) / PP / -40...+80°C .....

## Process fitting / Material

<b>XX</b>	without .....
<b>GP</b>	Thread G1½ PN3, DIN3852-A / PVDF .....
<b>NP</b>	Thread 1½NPT PN3, ASME B1.20.1 / PVDF .....
<b>XG</b>	Counter nut G1½ / PPH .....
<b>CA</b>	Clamp 2" PN3 (ø64mm) DIN32676, ISO2852 / 316L .....
<b>CB</b>	Clamp 3" PN3 (ø91mm) DIN32676, ISO2852 / 316L .....
<b>RA</b>	Slotted nut DN50 PN3, DIN11851 / 316L .....
<b>RB</b>	Slotted nut DN80 PN3, DIN11851 / 316L .....
<b>XC</b>	Mounting strap, length: 170mm / 316L .....
<b>XD</b>	Mounting strap, length: 300mm / 316L .....
<b>YD</b>	Compression flange suitable for flanges 3" 150lb, DN80 PN16 / PP-GF30 .....
<b>AE</b>	Adapter flange DN100 PN16 / PP-GF30, seal: FKM (SHS FPM 70C3 GLT) .....
<b>AH</b>	Adapter flange DN150 PN16 / PP-GF30, seal: FKM (SHS FPM 70C3 GLT) .....
<b>FK</b>	Adapter flange 4" 150lb, ASME / PP-GF30, seal: FKM (SHS FPM 70C3 GLT) .....
<b>FM</b>	Adapter flange 6" 150lb, ASME / PP-GF30, seal: FKM (SHS FPM 70C3 GLT) .....
<b>UC</b>	Adapter flange DN100 10K, JIS / PP-GF30, seal: FKM (SHS FPM 70C3 GLT) .....
<b>UE</b>	Adapter flange DN150 10K, JIS / PP-GF30, seal: FKM (SHS FPM 70C3 GLT) .....

## Electronics

<b>H</b>	Two-wire 4...20mA/HART® .....
<b>B</b>	Four-wire 4...20mA/HART®; 90...253V AC; 50/60Hz .....
<b>I</b>	Four-wire 4...20mA/HART®; 9.6...48V DC; 20...42V AC .....
<b>P</b>	Profibus PA .....
<b>F</b>	Foundation Fieldbus .....

## Housing / Protection

<b>K</b>	Plastic single chamber / IP66/IP67 .....
<b>R</b>	Plastic 2-chamber / IP66/IP67 .....
<b>A</b>	Aluminium single chamber / IP66/IP68 (0.2 bar) .....
<b>D</b>	Aluminium double chamber / IP66/IP68 (0.2 bar) .....
<b>W</b>	Stainless steel double chamber / IP66/IP68 (0.2bar) .....

## Cable entry / Cable gland / Plug connection

<b>M</b>	M20x1.5 / with / without .....
<b>N</b>	½NPT / without / without .....

## Display/adjustment module PLICSCOM

<b>X</b>	without .....
<b>A</b>	mounted .....

## Additional equipment

<b>X</b>	without .....
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PS61Y. 

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Only typical specifications are indicated in this table. For other specifications and detailed information, please contact Yokogawa.