

# LEVEL SENSORS CATALOG

Catalog Ref: 21B61647 Rev 0







### FOR MORE THAN 40 YEARS,

**ARCYS** qualifies and manufactures classified nuclear instrumentation.

We have been supplying level sensors for nuclear propulsion for more than 25 years.

Subsequently, these sensors were adapted for nuclear power plants.

**ARCYS** qualified for EDF level sensors based on the magneto-resistive principle for EPR reactors. We have been supplied this kind of sensors for **EPR FA3, TAISHAN 1, 2 and EPR HPC project**.

Since 2020, **ARCYS** has been a supplier of level sensors for **CGN's HUALONG** reactors.

The ARCYS expertise acquired today allows us to innovate and offer non-intrusive level sensors on the LIDAR principle (laser technology).

### **SUMMARY**

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### **OVERVIEW:** ANALOG FLOAT TYPE LEVEL SENSORS

### **TECHNICAL FEATURES**



- **Measurement length:** from 0,1 m to 12 m. Other length on request
- Accuracy: ± 21 mm for analogue level sensor ± 5 mm for switch sensor
- Resolution: 15 mm
- **Operating temperature:** Continuous 90°C, 135°C (900 minutes), 156°C (20 minutes)
- **Pressure: Max:** 18 bar at 25°C. Other pressure on request.
- I and U : Max: 137VDC and 10mA
- Insulation: 108 Ω
- Dielectric behaviour: 500 V/ 5mA
- Electrical base connector:
  - . K1/K3ad: Souriau 8NA1Y121PN00SA
  - . K2/K3ad/K3 &NC: Souriau 8N45S211225K2
- Irradiation: 350 kGy cumulated
- Vibration: 0,2 g, from 57 Hz to 500 Hz
- Magnetic induction: < 4.10-4 T
- Seismic resistance: Max: 30 g / 10 Hz
- Reliability: 10-6 failure/hour
- Qualification: RCCE, K1, K2, K3, K3ad & NC

# For analog level sensor (0,1 to 12m):

Continuous level measurement with a float (permanent magnet inside) travelling up and down along *a tube in which reed switches are installed.* 



- Robust full qualified sensors for safety
- Easy to use : passive analogue sensor
- Maintenance-free.
- No calibration
- High resistance under ionizing radiations

# ANAXF

## ANALOG FLOAT TYPE LEVEL SENSORS









Qua	lification Table
K1-	
K2-	
K3ad	-
K3-	
STD+	INT-
INT-	
STD-	
NQ- (	(No Qualification Required)

Model Table	
IF— with Intermediate Flange (length 150mm)	
VT— with Venting Tube (height 75mm)	
IFVT — with Intermediate Flange and Venting Tube	
BP— with ByPass	
WO— WithOut Still Tube	
<b>316L</b> - Stainless Steel	
904L- Stainless Steel with high corrosion resistance	
Options Table (multiple choice available)	
PE - Nuclear Pressure Equipment	

#### VARNING :

Unmeasurable dead zones are present at the float switching levels.

1.00	*
豐	150mm
	+

Please inform us about critical levels that shall not be concerned by a possible dead zone.

### **OVERVIEW:** SWITCH LEVEL SENSORS





# TOR1F

# Threshold float type level sensor with single detection level





## TOR2F

# Threshold float type level sensor with two detection levels





	Model-	Sensor	model	(see mo	odel ta	ble)							
		L-	Total L	ength u	under f	lange i	in mm (	see fig	ure)				
			QR-	Qualifi	ication	requir	ements	(See C	Qualificat	tion Tak	ole)		
				MAT -	Mater	rial <mark>(Se</mark>	e Mate	rial Ta	ble)				
					<b>PS</b> -	Maxin	num all	owabl	e interna	l pressi	ıre in baı	g	
						<b>DN</b> -	Total L	ength	under fla	inge in	mm (see	figure)	1
							<b>PN</b> -	Interfo	ace flang	e DN («	DN00 »	if not a	pplicable)
								L1-	Low Thr	eshold i	level in m	m (see	figure)
									U1-D1-	Low Di	rection o	f detec	tion (Way <b>U p/ Way D own)</b>
										L2-	High Thr	eshold	level in mm (see figure)
											U2-/D2-	High D	Direction of detection (Way <b>U p/ Way D own)</b>
												D-	Still Tube DN (see figure) ("NR" if not required)
													<b>Options</b> - (See Options table)
DR2F	/	/	/	/	/	/	/	/	1	/	/	/	/ .

Qualification Table
K1-
К2-
K3ad-
K3-
STD+INT-
INT-
STD-
NQ- (No Qualification Required)

Model Table	
IF— with Intermediate Flange (length 150mm)	
VT— with Venting Tube (height 75mm)	
IFVT — with Intermediate Flange and Venting Tube	
BP— with ByPass	
WO— WithOut Still Tube	
Material Table	
<b>316L</b> - Stainless Steel	
904L- Stainless Steel with high corrosion resistance	
<b>Options Table</b> (multiple choice available)	
PE - Nuclear Pressure Equipment	
LC– For Low Ceilling installation	

#### WARNING :

Unmeasurable dead zones are present at the float switching levels.



Please inform us about critical levels that shall not be concerned by a possible dead zone.

# NOTES

### SWITCH LEVEL SENSORS

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## **OVERVIEW:** SPECIFIC ANALOG LEVEL SENSORS



### **ANA-POOL-IRWST**

### **ANA-POOL-PTR**

Very long sensor (about 5m of measurement). The final assembly is done on site during installation: the sensor is delivered in several parts for reasons of accessibility and space constraints. Long sensor for fuel pools. It is partially removable to allow the installation of the removable floor of the fuel pool.

#### **ANA-MM**

Analog float type level sensor for RCV tank.

The sensor is provided with three measuring parts giving three independant results of the level measured. **ANA-SP** 

## SPECIFIC ANALOG FLOAT TYPE LEVEL SENSORS





IMPORTANT: Please contact ARCYS for length specification at: sales-team@arcys.fr

## NOTES

## SPECIFIC ANALOG FLOAT TYPE LEVEL SENSORS



Level Sensors, ARCYS—Copyright photo: Claude MAURECH



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