



Magnetic Level Gauge

Type 811



SUMMARY

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Type 811

General description

The magnetic level gauge (Top mounting) type 811 enables the direct reading of the levels of either aggressive or dangerous liquids in tanks, in the open air or under pressure. Based on its construction, this device ensures a good accuracy, excellent reliability and greater safety of use.

The set float / transmitter allows transmission of the level of liquid contained in the tank to the display system mounted on the chamber.

It is best to use a guide tube :

- **For insertion lengths >1 meter**
- **For tanks with turbulent fluids**

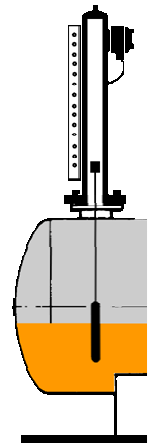
Version with slider (811S) The set float / transmitter causes a magnetic index which slides in a Pyrex tube located along a graduated scale.

Version with rollers (811R) The set float / transmitter commands on its way the swing of two-tone magnetically locked rollers (polyamide).

The red zone (continuous band) indicates the level in the tank.

Version with flaps (811VA) The set float / transmitter commands on its way the swing of two-tone magnetically locked flaps (aluminum).

The red zone (continuous band) indicates the level in the tank.



Design / Regulation

Two design codes are applicable to the design of level gauges type 810:

-The French code said: CODAP

-The American code said: ASME VIII

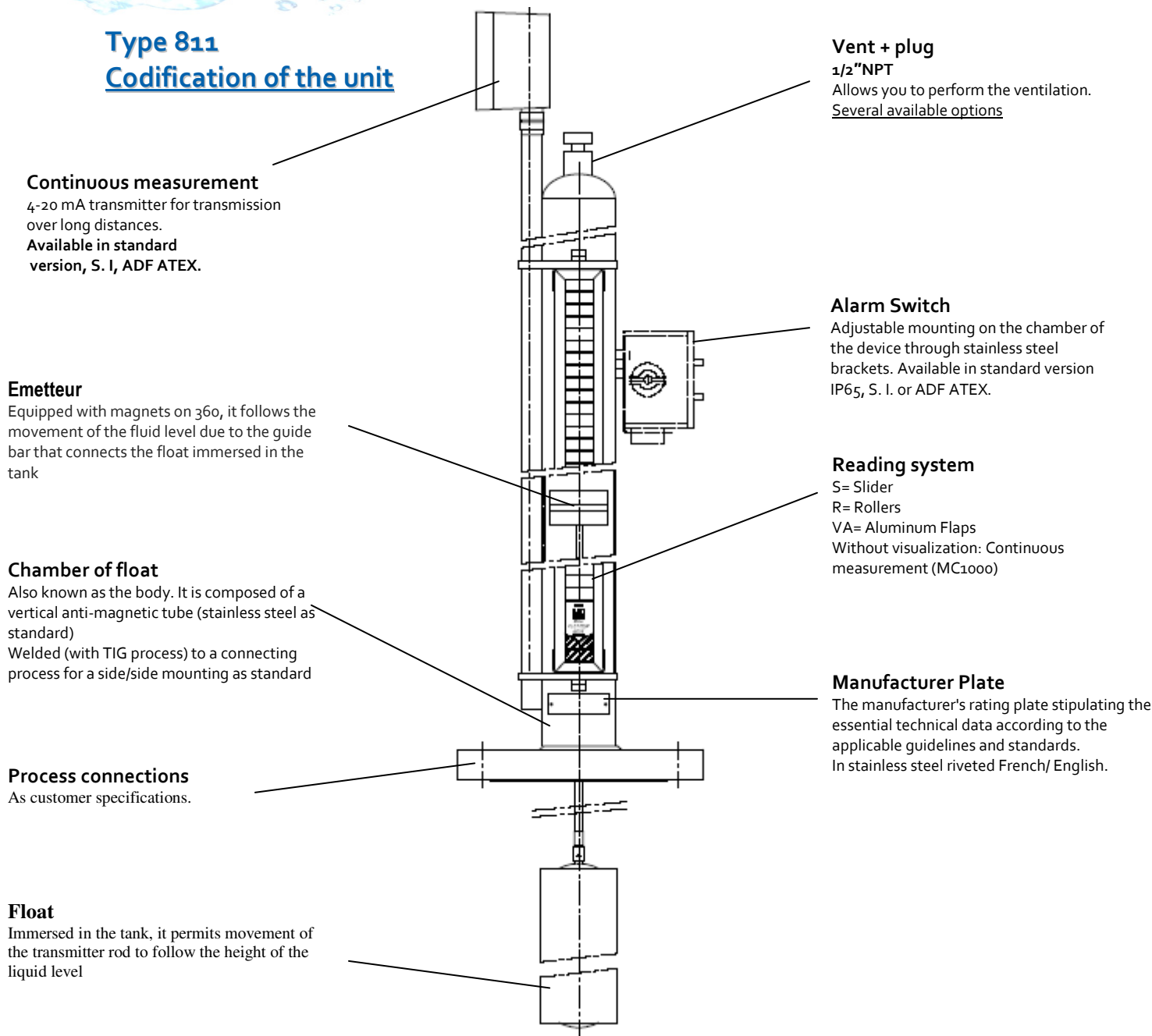
The devices of type 811 are French manufactured and controlled in our workshops according to the ISO 9001, 2008 version

In some cases, the design of level gauges type 811 may be subject to the Pressure Equipment Directive of 2014/68/EU (PED)

Depending on the options selected, these may being subject to certain regulations (Atex, ...)



Type 811 Codification of the unit



811 - R - 16 - C3 - M3 - T1 - S1x1 - Z4 - D12 - 500 -

Type of construction	Reading system	PN	Type of construction	Type of float	Type de transmitter	Types de switch x qty	Options	Documentation, certificates	Center to center (mm)	PED category
See pages 5-6	See pages 7-9		See page 10	See page 11	See pages 14-18	See pages 12-13	See pages 9-10	See page 19		If applicable article 3§3 CATI CATII CATIII CATIV

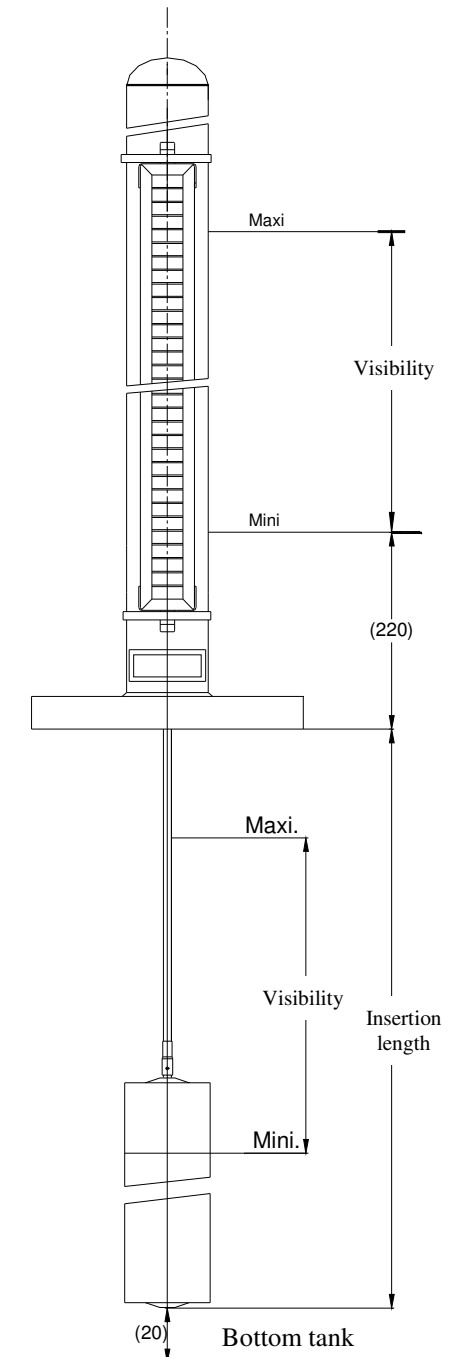
Type 811

Stainless steel Construction 304L

Standard Version

Stainless steel 304L code C3-C4

Chamber	Material: 304L Ø 60,3mm x 2mm rolled welded
Connections C3 C4	Top mounting Flange 304L DN80 PN (to specify) according EN 1092-1 or EN 1759-1 Flange 304L DN100 PN (to specify) according EN 1092-1 or EN1759-1 See connections specifications page 10
Insertion	Minimum: E= 300 mm Maximum: E= depending specific gravity of the fluid
Float	M3 Stainless steel MX : On request See floats specifications page 11
Indication	R - Polyamide Rollers (PA6V) White/Red VA - Aluminum Flaps White/Red S - Magnetic Slider Indication of sank float (Blue Flaps/Rollers) See indicator specifications pages 7 à 9
Upper Part	Welded bottom 304L Other available options -see page 10
Guide Tube	K3 : Tube Ø76.1 for connections DN80 K4 : Tube Ø76.1 pour connections DN100 Crossing for guide tube Ø81 mini
Switch	See specifications switch pages 12-13
Transmitter	See specifications transmitters pages 14-18
Scales	Stainless steel 304L (Graduated) Other available options –see page 9
Service conditions	
Temperature	-160°C à +350°C
Pressure	Atm to limit PN of the flange according to applicable Standard
Density	From 0,6 kg/m ³ Interface measurement as option



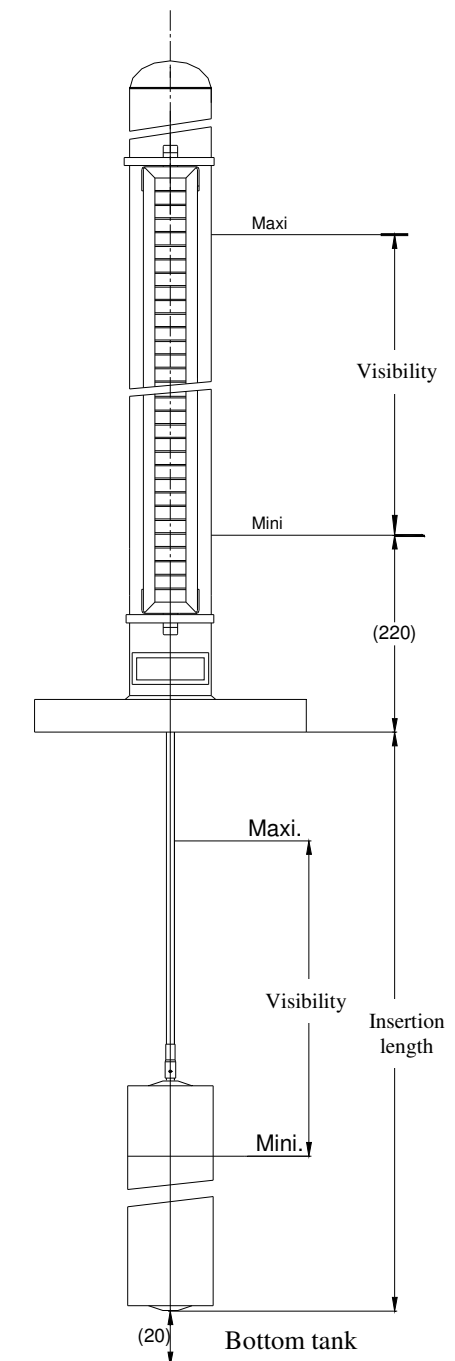
Type 811

Stainless steel Contruction 316L

Standard version

Stainless steel 316L code C5-C6

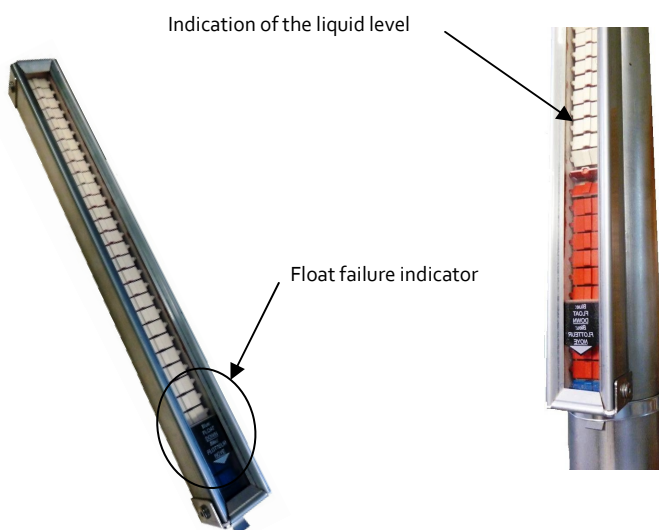
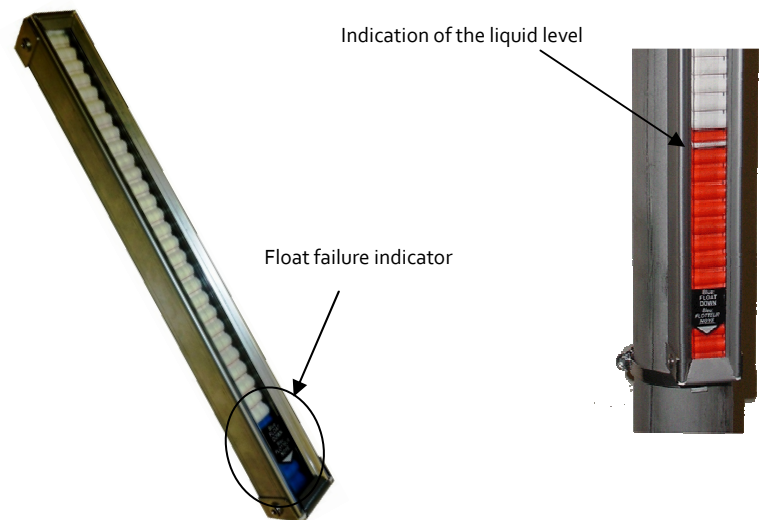
Chamber	Material: 316L Ø 60,3mm x 2mm rolled welded
Connections C5 C6	Flange 316L DN80 PN (to specify) according EN 1092-1 or EN 1759-1 Flange 316L DN100 PN (to specify) according EN 1092-1 or EN 1759-1 See connections specifications page 10
Insertion	Minimum: E= 300 mm Maximum: E= depending specific gravity of the fluid
Float	M3 Stainless steel MX : On request See floats specifications page 11
Indication	R - Polyamide Rollers (PA6V) White/Red VA - Aluminum Flaps White/Red S - Magnetic Slider Indication of sank float (Blue Flaps/Rollers) See indicator specifications pages 7 à 9
Upper Part	Welded bottom 304L Other available options -see page 10
Guide Tube	K5 : Tube Ø76.1 for connections DN80 K6 : Tube Ø76.1 pour connections DN100 Crossing for guide tube Ø81 mini
Switch	See specifications switch pages 12-13
Transmitter	See specifications transmitters pages 14-18
Scales	Stainless steel 304L (Graduated) Other available options -see page 9
Service conditions	
Temperature	-160°C à +350°C
Pressure	Atm to limit PN of the flange according to applicable Standard
Density	From 0,6 kg/m³ Interface measurement as option



Type 811 Visualization Systems

Indicator with two-toned rollers

Code	R
Envelope	Thickness 1 mm Material: stainless steel -304L as standard Seals: Silicone Sealing: IP 65
Rollers	Resolution: 10 mm Material: polyamide Rollers set position Visualization continuous reading tape Magnet Colors: Red/ White/ Blue
Screen	Material: Transparent Polycarbonate
Temperature fluid	-10°C to + 120°C +120°C to+ 200°C thermal screen
Resolution Test	10mm Float failure indication by blue colored rollers (last three rollers)



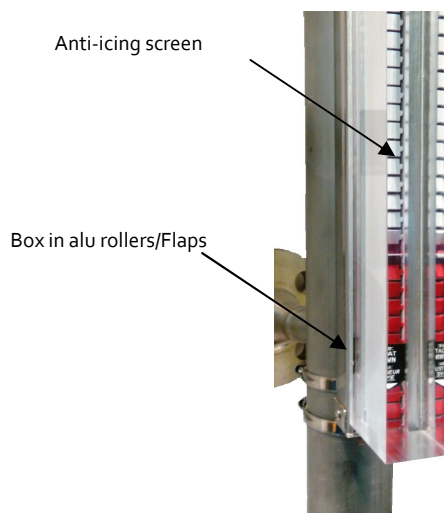
Indicator with high temperatures Flaps

Code	VA
Envelope	Thickness 1 mm Material: Stainless Steel st. steel Seals: Silicone Sealing: IP 66
Flaps	Resolution: 10 mm Material: Aluminum Magnet Colors: Red/ White/ Blue
Screen	Material: Vitro-ceramic Glass
Temperature fluid	-20 to+ 200°C +200°C to +400°C thermal screen
Résolution Test	10mm Float failure indication

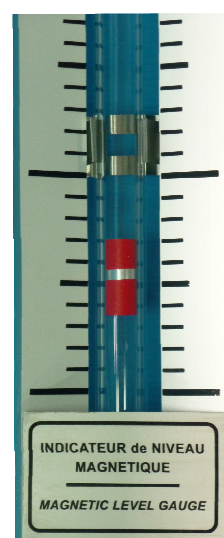
Type 811

Visualization Systems

Indicator with low temperatures Flaps	
Code	VA + Z22
Envelope	Thickness 1 mm Material: Stainless Steel Seals: Silicone IP: 65
Flaps	Resolution: 10 mm Material: Aluminum Magnet Colors: Red/ White/ Blue
Screen	Material: Polycarbonate ep:70 mm
~~~~~	
<b>Temperature process</b>	-20 à -160°C
<b>Resolution Test</b>	10mm Float failure indication



Indicator with a Slider	
<b>Code</b>	<b>S</b>
<b>Tube</b>	Material: PYREX Ø24 Synthetic Plugs IP: 66
<b>Slider</b>	Size: 35 mm x Ø 15 mm Material: Aluminum Magnetic Index Colors: Red
<b>Sliding bars</b>	Material: aluminum / Stainless Steel Scale: silk screened see page 10 Unit: Dm/Cm as standard
~~~~~	
Temperature fluid	Up to + 400°C
Resolution	5 mm



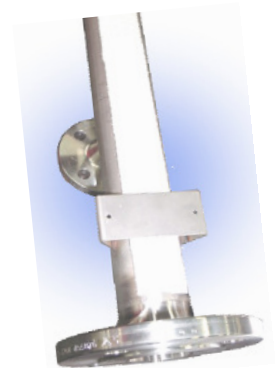
Type 811

Visualization Systems - Accessories and options

Thermal Screen

Code	Z2
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Screen	Material: Glass fiber
Temperatures	From + 120°C for Rollers (R) / Slider (S) indicator version From + 120°C for transmitters From + 200°C on Aluminum Flaps (VA) indicator version



Graduated Scales for 811 R / VA

Code	Z24/i
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Indicator	R / VA
Graduation	Cm and calculation every dm
Material	stainless steel 304L as standard
Fastener	Permanent (score)
Dimensions	Mounting bracket: 20 mm x 30 mm x 1.5 mm

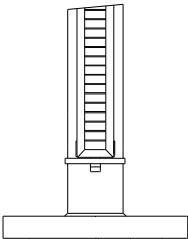
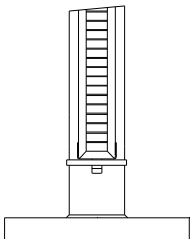
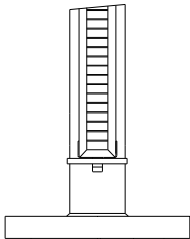
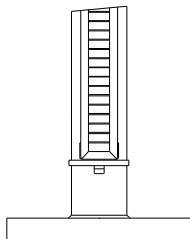
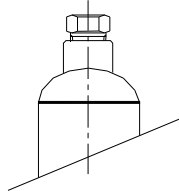
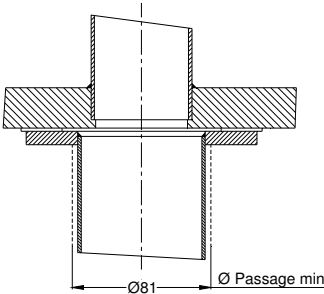
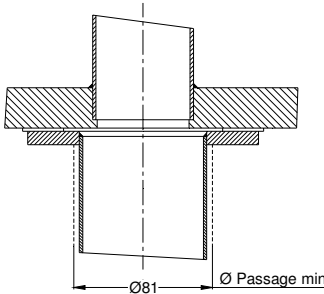
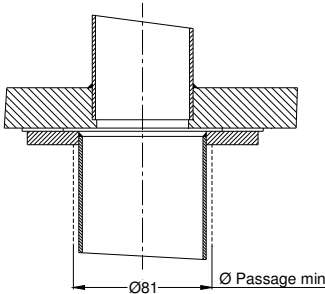
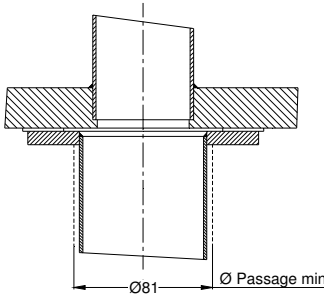


Graduated Scales for 811 R / VA

Code	Z23/i
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Indicator	R / VA
Graduation	Customized according to client specifications (ex: Volume, percentage, inch, feet etc.)
Material	stainless steel 304L as standard
Fastener	Permanent (score)
Dimensions	Mounting bracket: 20 mm x 30 mm x 1.5 mm



Process connections for rolled welded chamber Ø60.3 x2 Codes C3 to C6				Vent Options	
C3 304L material	C4 304L material	C5 316L material	C6 316L material	Z3 1/2" BSP	Z4 1/2" NPT
 DN80 PN according customer Process	 DN100 PN according customer Process	 DN80 PN according customer Process	 DN100 PN according customer Process		
K3  Ø81 Ø Passage min	K4  Ø81 Ø Passage min	K5  Ø81 Ø Passage min	K6  Ø81 Ø Passage mini.		

CX :specifics connections processs on request

Type 811

Set Float / Transmitter

Stainless steel float		
Code	M3	
Body	Stainless steel L=270 ± 1 mm	
Control rod	Ø6	
Temperature	≤90°C	
Density spans	M3 M3X	0.6 à 1.5 Si >1.5 on request
	MX interface density	
Pressure	12 bars at 20°C	
Transmitter		
Body	Polypropylène Ø51.3	
Temperature	<90°C	
	Si T°C >90°C Stainless steel or titan transmitter on request	



Other floats upon request depending on the customer process (material, dimension)

Type 811

Alarm switch

Each level gauge can be equipped with alarm Switch. These are adjusted in such a way that they can switch to the rise or descent from a chosen liquid level

NOTE: The options of alarm Switch for the gauges of type 811 can be installed for both versions indicator rolls (R), strands bicolor (VA) or follower (S).

They are simply mounted against the main chamber through stainless steel clamps.

The electrical connection is made by screw terminal and cable gland.

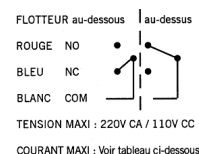
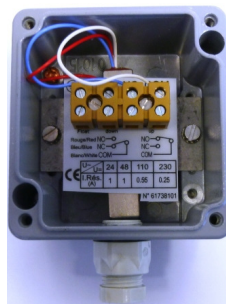
NOTE: For each Switch, the cutting height and the orientation must be specified when ordering. Without any indication, the Switch will simply be mounted on the chamber and the client will have to bear the cost of setting.

Option S20 : « Tropicalisation » of switch

Switch can be added on the existing level gauges.

Simple Switch ILS IP65

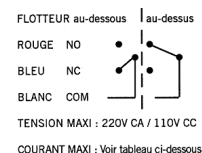
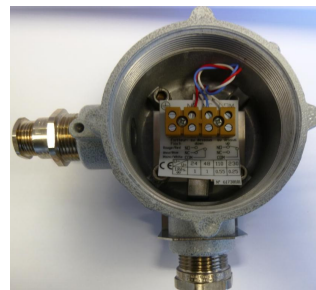
Code	S1	S6
Dimensions (LxWxH)	80mm x 75mm x 57mm	
Material	Aluminium	
Switch	ILS simple inverter	
Connection	Cable gland PG9 Polyamide for cables Ø 5 to 8m	
Protection	IP65	
Finishing	Polyester paint	
Voltage Max.	230V	
Max. power	60W/ 60VA	
Temperature	+ 200°C Max.	+ 300°C Max.



TENSION	COURANT MAXI	
	AC	DC
230V	0,25A	////////
110V	0,55A	
48V	1A	
24V	1A	

Simple switch / Double ILS ADF

Code	S2	S4
Dimensions (LxWxH)	115mm x 115mm x 80mm	
Material	Aluminium	
Switch	simple ILS	double ILS
Connection	Cable gland ¾"NPT Aluminium for cables Ø 5 to 12mm (supplied) Certified ATEX ADF ("d")	
Protection	IP65/66 – Screw cover	
Finishing	Aluminium epoxy paint finish	
Voltage Max. ILS	230V	
Max. power ILS	60W/ 60VA	
Approval	ATEX N° LCIE01ATEX6060X / IECEx LCI 09.0017X	
Marking***	Ⓔ II 2G Exd IIC T6 Gb	
Electrical parameters (CE certificate)	Max. power : 230V Max. Current : 15A Max. power loss : 20W	
Temperature	Ta = -40°C to + 60°C	
Rating plate	Aluminium / Stainless steel rivets	

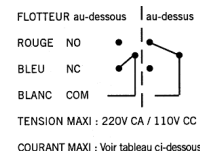
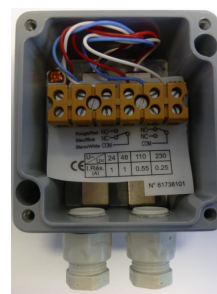


TENSION	COURANT MAXI	
	AC	DC
230V	0,25A	////////
110V	0,55A	
48V	1A	
24V	1A	

*** The ATEX marking complies with the Directive 2014/34/UE, and certifies the Switch ILS and the enclosure.

Double Switch ILS IP65

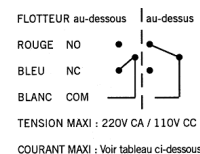
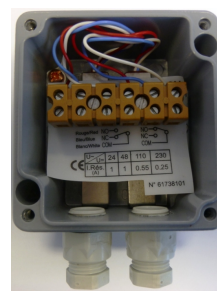
Code	S3	S7
Dimensions (LxWxH)	80mm x 75mm x 57mm	
Material	Aluminium	
Switch	Double ILS simple inverter (see diagram)	
Connection	Cable gland PG9 Polyamide for cables Ø 5 to 9mm	
Protection	IP65 – 4 screws cap closure	
Finishing	Polyester paint	
Max. voltage	230V	
Max. power	60W/ 60VA	
Temperature	+ 200°C Max.	+ 300°C Max.



TENSION	COURANT MAXI	
	AC	DC
230V	0,25A	0,55A
110V	0,55A	1A
48V	1A	1A
24V	1A	1A

Simple Switch/Double ILS S.I.

Code	S8	S9
Dimensions (LxWxH)	80mm x 75mm x 57mm	
Material	Aluminium	
Switch	Simple ILS inverter	Double ILS inverter
Connection	Cable gland PG9 Exe Polyamide For cables Ø 5 to 9mm	
Protection	IP65 – 4 screws cap closure	
Finishing	Polyester paint	
Approval	ATEX N° LCIE05ATEX6034X/ IECEx LCI 08.0048X	
Marking***	II 1 G Exia IIC T6/T5/T4 Ga	
Electrical Parameters	Ui≤30V; li≤101mA; Pi≤400mW Ci=onF; Li=omH	
Temperatures	T6: Ta=50°Cmax. / T5: Ta=65°Cmax. / T4: Ta=80°Cmax.	
Rating Plate	Aluminium / stainless steel rivets	



TENSION	COURANT MAXI	
	AC	DC
230V	0,25A	0,55A
110V	0,55A	1A
48V	1A	1A
24V	1A	1A

Pneumatic Switch N/O - N/F

Code	S21	S22
Dimensions H x d	120mm x Ø 80mm	
Material	Inox 316L	
Switch	"Normalement fermé"	"Normalement Ouvert"
	1: Entrée 2: Sortie 3: Echappement	1: Entrée 2: Sortie 3: Echappement
Connection	3 inputs/outputs at 0°/ 45°/ 90° 1/4" NPT	
Finishing	Crude Stainless Steel	
Pressure	2 to 6 bars	
Temperature	-15°C < T < + 60°C	

Type 811

Transmitters /continuous measurement 4-20mA

Each level gauge can be equipped with a magnetic transmitter for continuous measurement.

An electronic line consisting of reed Switch thumbnails is inserted in a stainless steel tube maintained along the body of the appliance.

This line acts as a control potentiometer guide by the movements of the float.

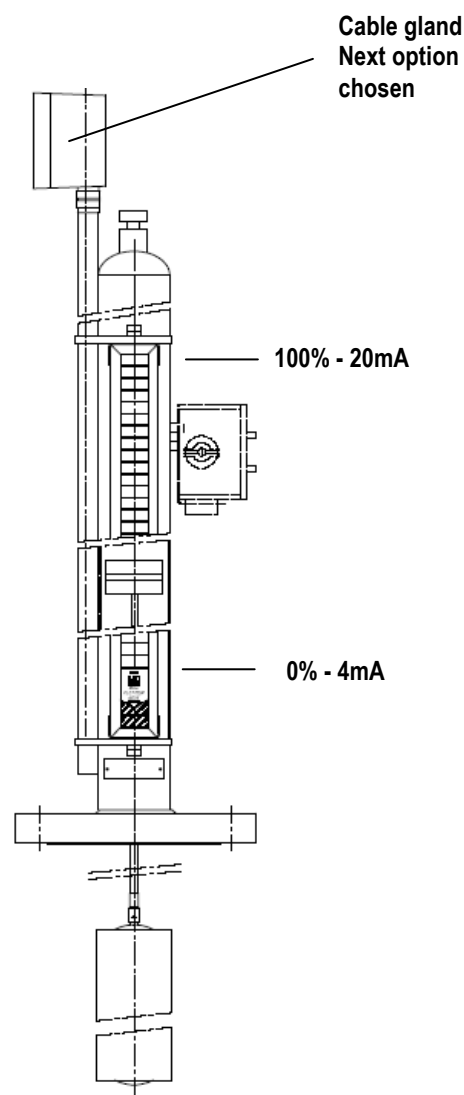
The transmitter is housed in an IP65 aluminum enclosure, ATEX version or other on request.

The transmitter can be added on an existing level gauge.

Construction

Type	Transmitter 4-20mA
Tube guide	Stainless steel 316 L
Enclosures	Aluminium IP65 as standard Aluminium ADF "d" Aluminium S.I. "ia" 316L Stainless Steel "d" or "ia"
Construction	Vertical is Standard Angled optional **
Fastener	Stainless steel clamps
Modules Transmitters	Standard ATEX S.I. "ia" HART HART ATEX S.I. "ia" HART LIN HART LIN ATEX S.I. "ia"
Max. Reading	5,5m
Resolution	15mm
Protection	IP65 – IP67
Max Temperature	+ 300°C (insulation from 120°C)

**** The angled version is mandatory** when the transmitter is reversed



Type 811

Transmitters / continuous measurement 4-20 mA

Transmitter Code T₁ - T₁/C

Protective housing type : Square Standard

Dimensions (LxWxH)	80mm x 75mm x 57mm
Material	Aluminium
Tube guide	Ø 14mm 316L stainless steel
Connection	Cable gland PG9 Polyamide for cables Ø 6 to 11mm
Protection	IP65 – 4 screws cap closure
Finishing	Polyester paint

Type XT₄₂ -NIV (standard)

Output	4-20mA 2 fils
Maximum Measurement	5,5 m
Power supply	12V < U < 30V
Temperature	-20°C < T < 70°C
Precision	0,15% full scale
Resolution	15mm

Option	Stainless steel housing code T ₂₀ - T ₂₀ /C
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Transmitter Code T₂ – T₂/C

Protective housing type : Intrinsic Safety ("ia")

Dimensions (LxWxH)	80mm x 75mm x 57mm
Tube Guide	Ø 14 mm 316 L Stainless Steel on brass fitting 3/4" NPT
Connection	Cable gland PG9 Exe blue Polyamide For cables Ø 5 to 8 mm
Protection	IP65
Finishing	Ash epoxy paint finish
Approval	ATEX N° LCIE05ATEX6034X / IECEx LCI 08.0048X
Marking **	II 1 G Exia IIC T6/T5/T4 Ga
Electrical Parameters	U _i ≤30V; I _i ≤101mA; P _i ≤758mW Or U _i ≤28,4V; I _i ≤116mA; P _i ≤824mW C _i =0nF; L _i =0mH
Temperatures	T6: Ta=50°Cmax. / T5: Ta=65°Cmax. / T4: Ta=80°Cmax.
Rating Plate	In accordance with existing regulations



Type XT₄₂-NIV S.I

Output	4-20mA - 2 fils
Maximum Measurement	5,5 m
Power Supply	12V < U < 30V
Temperature	-20°C < T < 65°C
Precision	0,15% full scale
Resolution	15mm

ATEX Approval	Intrinsic Safety "ia" *
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Option	Stainless steel housing code T ₂₁ - T ₂₁ /C
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* The transmitter module must be chosen from among the ATEX models certified by S. I.

Transmitter Code T₄ – T₄/C

Protective housing type : B₄ - Flameproof (ADF "d")

Dimensions (LxWxH)	115mm x 115mm x 80mm
Material	Aluminum
Tube Guide	Ø 14 mm 316 L Stainless Steel on brass fitting ¾" NPT
Connection	Cable gland ¾"NPT for cables Ø 6 to 14 mm (supplied) Certified ADF ATEX ("d")
Protection	IP65/66 - Screw cap cover
Finishing	Aluminum paint
Approval	ATEX N° LCIE01ATEX6060X / IECEx LCI 09.0017X
Marking ***	 II 2G Exd IIC T6 Gb
Electrical Parameters	Max Power.: 230 W Max Current. : 15 A Max Power loss. : 20 W
Temperatures	Ta = - 40°C to + 60°C
Rating Plate	In accordance with existing regulations



Type XT₄2 -NIV (standard)

Output	4-20mA 2 wires
Maximum Measurement	5,5 m
Power Supply	12V < U < 30V
Temperature	-20°C < T < 70°C
Precision	0,15% full scale
Resolution	15mm



Option	Boitier Inox code T ₂₂ -T ₂₂ /C
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*** The ATEX marking complies with the Directive 94/09/CE, and certifies the ILS ramp and the enclosure.

Transmitter Code T₅ – T₅/C

Protective housing type : Square Standard

Dimensions (LxWxH)	80mm x 75mm x 57mm
Material	Aluminium
Tube Guide	Ø 14mm Inox 316L
Connection	Cable gland PG9 Polyamide for cables Ø 6 to 11 mm
Protection	IP65 - 4 screws cap closure
Finishing	Polyester Paint

Type XT₄3-H-NIV

Output	4-20mA 2 wires
Maximum Measurement	5,5 m
Power Supply	9,5V < U < 30V
Temperature	-20°C < T < 70°C
Precision	0,1% full scale
Resolution	15mm
Protocol	HART
Acquisition	10/s
Limits	3,8mA / 22mA



Option	Linearization Code T ₉ - T ₉ /C Stainless steel housing code T ₂₃ - T ₂₃ /C Stainless steel Housing+Linearization code T ₂₆ - T ₂₆ /C
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Transmitter Code T6 – T6/C

Protective housing type : Intrinsic Safety ("ia")

Dimensions (LxWxH)	80mm x 75mm x 57mm
Tube Guide	Ø 14 mm 316 L Stainless Steel on brass fitting ¾" NPT
Connection	Cable gland PG9 Exe blue Polyamide For cables Ø 5 to 8 mm
Protection	IP65
Finishing	Ash epoxy paint finish
Approval	ATEX N° LCIE05ATEX6034X / IECEx 08.0048X
Marking **	 II 1 G Exia IIC T6/T5/T4 Ga
Electrical Parameters	$U_i \leq 30V$; $I_i \leq 101mA$; $P_i \leq 758mW$ Or $U_i \leq 28,4V$; $I_i \leq 116mA$; $P_i \leq 824mW$ $C_i = 0nF$; $L_i = 0mH$
Temperatures	T6: Ta=50°Cmax. / T5: Ta=65°Cmax. / T4: Ta=80°Cmax.
Rating Plate	In accordance with existing regulations



Type

XT 43-HART S.I.

Output	4-20mA 2 wires
Maximum Measurement	5,5 m
Power Supply	9,5V < U < 30V
Temperature	-20°C < T < 65°C
Precision	0,1% full scale
Resolution	15mm
Protocol	HART
Acquisition	10/s
Limits	3,8mA / 22mA
ATEX Approval	Intrinsic Safety "ia"



Option	<i>Linearization Code T10- T10/C</i> <i>Stainless steel housing code T24 - T24/C</i> <i>Stainless steel Housing+Linearization code T27- T27/C</i>
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** The ATEX marking complies with the Directive 94/09/CE, and certifies the transmitter, the ILS ramp and the enclosure

Transmitter Code T7 –T7/C

Protective housing type : B4 - Flameproof (ADF "d")

Dimensions (LxWxH)	115mm x 115mm x 80mm
Material	Aluminium
Tube Guide	Ø 14mm 316 L Stainless Steel on brass fitting ¾" NPT
Connection	Cable gland ¾"NPT for cables Ø 6 to 14mm (supplied) Certified ADF ATEX ("d")
Protection	IP65/66 - Screw cap cover
Finishing	Aluminum paint
Approval	ATEX N° LCIE01ATEX6060X / IECEx LCI 09.0017X
Marking **	 II 2G Exd IIC T6 Gb
Electrical Parameters	Max Power.: 230 V Max Current. : 15 A Max Power loss. : 20 W
Temperatures	Ta = - 40°C at + 60°C
Rating Plate	In accordance with existing regulations



Type XT43-H-NIV

Output	4-20mA 2 wires
Maximum Measurement	5,5 m
Power Supply	9,5V < U < 30V
Temperature	-20°C < T < 70°C
Precision	0,1% full scale
Resolution	15mm
Protocol	HART
Acquisition	10/s
Limits	3,8mA / 22mA



Option	Linearization Code T11 - T11/C Stainless steel Housing+Linearization code T25- T25/C Stainless steel Housing+Linearization code T28- T28/C
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** The ATEX marking complies with the Directive 94/09/CE, and certifies the transmitter, the ILS ramp and the enclosure

ISA Housing - 316 L Stainless Steel

Dimensions (Øxh)	Ø 103mm, h=117mm
Tube Guide	Ø 14mm Stainless Steel 316L
Connection	Cable gland M20x1.5 Polyamide for cables Ø 5 to 9 mm
Protection	IP67- closing by screw cover
Finishing	Crude Stainless Steel
ADF Certified version	
Marking **	 II 2G Exd IIC T5/T6 Gb
Approval	ATEX N° LCIE01ATEX6060X / IECEx LCI 09.0017X
Connection	Cable gland M20x1.5 Certified ADF "d" Stainless Steel
Protection	IP67- closing by screw cover
Finishing	Crude Stainless Steel



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Type 811

Documentation

Document Code	Description
	Instruction Manual
D0	Material certificate 3.1 (except Float)
D6	Dye Penetrant test HOUDEC (Not certified COFREND-ASNT)
D7	Dye Penetrant 10% (Certified COFREND-ASNT)
D8	Radiographic test 10% (Certified COFREND-ASNT)
D11	Electronic documentation (CD-Rom - USB key)
D12	Technical drawing
D13	Hydraulic test certificate Material certificate 2.2

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