Level Sensors and Switches

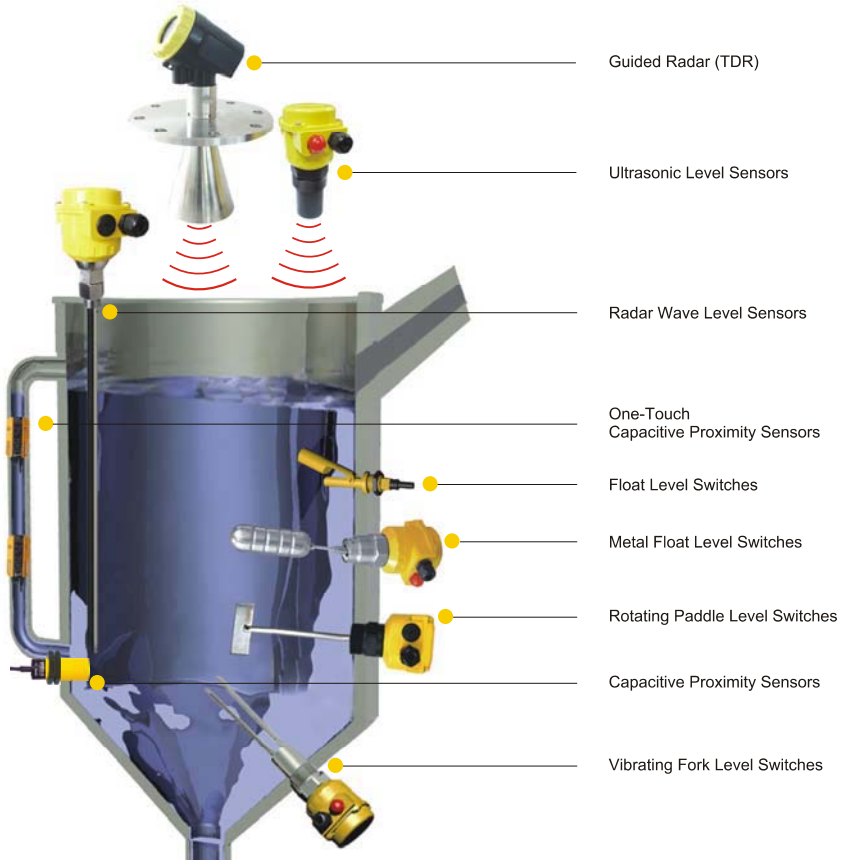
- Guided Radar (TDR)
- Radar Wave Level Sensors
- Ultrasonic Level Sensors
- Rotating Paddle Level Switches
- Vibrating Fork Level Switches
- Float Level Switches

Applications

Suitable for the applications in the field of chemical plastics, pharmaceutical manufacturing, fodder, grains, cement, fertilizer, powder, fuel materials, hydraulic system, cooling water system, and so on.

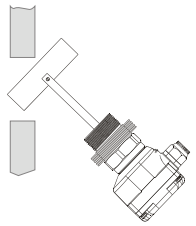
Recommended ema level switches for different medium detection in tank.

Radar wave sensors / Guided radar (TDR): Pellet; Powder; Liquid
Ultrasonic level sensors: Solid; Liquid
Rotating paddle level switches: Pellet; Powder
Float level switches: Liquid
Vibrating fork level switches: Pellet; Powder; Liquid

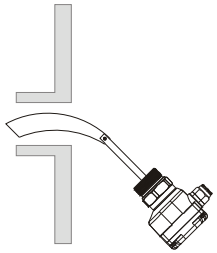


Mounting Instructions

Rotating Paddle Level Switches

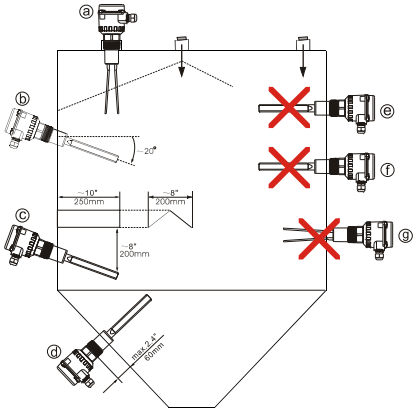


Mounting on the wall of container directly: Insert one side of the paddle to the hole of container by 35°, turn it to right position slowly after the other side of the paddle passed through half of the wall-thickness.



The sickle shape paddle can be mounted on the container directly: Insert the paddle to the G1-1/2 inches hole by curving path and tight it on the container.

Vibrating Fork Level Switches



Correct mounting:

ⓐ Top installation
Fork is vertical towards bottom and mounted in any position far away from the feed opening of top side.

ⓑ Side installation
Fork angled slightly downwards by 15~20 degree so as to reduce the shock and the hanging of the flowing materials.

Ⓒ Side installation with shield
With a shield, length approx.10"(250mm), width approx.8" (200mm), folk angled slightly downwards by 15~20 degree so as to reduce the shock of the float materials and prevent the improper stock from itself.

ⓓ In discharge hopper
Max. Nozzle length 2.4" (60mm), so that no build-up occurs which prevents the fork from oscillating.

Incorrect mounting:

ⓔ Side installation in filling curtain or under the feed opening.

ⓕ Incorrect fork orientation
The fork is subjected to high load caused by falling material, malfunction due to residual material.

ⓖ The switch do not work when the distance of mounting nozzle and barrel is over 2.4"(60mm).

- Wide detecting range with high accuracy
- Suitable for complicated working places such as whose changes in temperature or pressure due to its non-contact measurement
- Suitable for detecting extremely sticky liquid
- Support HART Protocol
- The max. detecting range up to 35M
- Resolution is smaller than 0.1%

IP68 CE RoHS Ex

Drawing

Page	>>> P.235

Order information

RA	1	1	A	1	S	1	1
Series	Arial type	Arial extension	Process temperature	Cable entrance	protection type	Wiring	Process connection / material

RA	**Guided Radar (TDR)**
1	**Arial type** 1: Loudspeaker Drawing No.: E4001
1	**Arial extension** 1: None
A	**Process temperature** A: -40~150 Normal temperature
1	**Cable entrance** 1: M20×1.5
S	**Housing protection type** S: Standard Aluminum, IP68 E: Ex-proof (Explosion proof) Exd II CT6
1	**Wiring** 1: 2-wire, 24VDC / 4~20MA
1	**Process connection / material** 1: Flange DN50 PN0.6 / Stainless steel 316 2: Flange DN80 PN0.6 / Stainless steel 316 3: Flange DN100 PN1.6 / Stainless steel 316 4: Flange DN150 PN1.6 / Stainless steel 316

- Adopts TDR technology
- Continous level maesurement combined with
- Switching output for simple installation and for cost-saving
- Suitable for different working places and different shapes of tanks with a unique design
- Anti-interference; Anti- static properties;High stability
- Channeled signal,suppression of disturbance
- Support HART protocol
- Capable to detect substance with low-dielectric constants such as oil and hydrocarbon

IP67 CE OIL RoHS

Accessories

HART module	Order No.	Drawing No.
	UP0002	E4005

Drawing

Page >>> P.235

Order information

RB	1	A	01000	S	4	1
Series	Probe Type	Output	Output	Protection type	Probe material	O-ring material

RB	**Radar Wave Level Sensors**
1	**Probe type** 1: 1000 Single rod Drawing No.: E4002 2: 2000 Coaxial rod Drawing No.: E4003 3: 3000 Cable with rod Drawing No.: E4004
A	**Output** A: 4-wire, 1 x 4~20mA & 1xDC PNP/HART
01000	**Length of probe** Range of single rod: 100~3,000mm Range of coaxial rod: 100~6,000mm Range of cable: 100~20,000mm 01000=1,000mm 06000=6,000mm (standard length: 1000mm)
S	**Protection type** S: Standard
4	**Probe material** 4: Stainless steel 304 6: Stainless steel 316 T: Teflon (other material is available on request)
1	**O-ring material** 1: FKM (Viton) (other material is available on request)

Selection notice:

1. Confirm voltage, 12~30VDC (reverse polarity protection)
2. Confirm installation
3. Check specific gravity of detected medium
4. Hole thread is G3/4"

- Wide sensing range; High accuracy; Low energy depletion
- Non-contact measurement; fixed components
- Capable to detect liquid and solid
- Adopts echo tracking technique to capture the real echo precisely
- Adopts temperature compensation technique (on speed and frequency) to make the measurement more precise and reliable
- With both digital and analogical outputs

IP65 CE RoHS

Order information

Order No.	Housing material	Connecter	Sensible range (M)	Thread	Ambient temperature (℃)	Ouput	Protection	Drawing No.
VS0001	Aluminum Alloy	G2"	0.3 ~ 10	M20 × 1.5	–40 ~ +80	3 wire,4 ~ 20mA	IP65	E4006

Drawing

Page >>> P.235

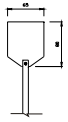
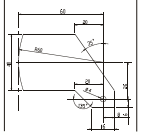
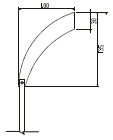
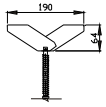
- Special shaft sealing for dust-proof
- Rotating torque can be adjustable
- Small and compact design for simple mounting
- Stainless steel mechanical parts and robust gear motor make maintenance free
- Easy installation on the container
- Suitable to detect very light bulk solids
- Hole thread is G1-1/2"

IP66 CE OIL RoHS

Accessories

Flange	Order No.	Drawing No.	Fixture	Order No.	Drawing No.
	0607F	E4020		0607X	E4022

Paddle (mm)

T1 Type	T2 Type	T3 Type	L1 Type	L2 Type	N Type	V Type
						
Order No.:SR1000T1	Order No.:SR1000T2	Order No.:SR1000T3	Order No.:SR1000L1	Order No.:SR1000L2	Order No.:SR1000N	Order No.:SR1000V
100×30×1.8	80×30×1.8	65×80×1.8	50×30×1.8	60×40×1.8	100×30×1.8	190×64×1.8

Notice: Sizes of paddles and of shafts are avaliable to be customized.

Drawing

Page	>>> P.235–237

Order information

SR / ST	1000	B	220	T1	F
Series	Standard type	110~220VAC	220mm	100×30×1.8	Flange

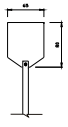
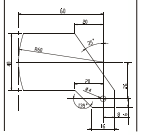
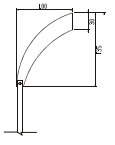
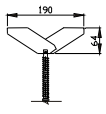
Series	SR	ST
1000	**Probe type** 1: 1000 Standard 2: 2000 High temperature 3: 3000 Standard type with shaft-protection 4: 4000 High temperature with shaft-protection 5: 5000 Extension with cable	**Probe type** 1: 1000 Standard Drawing No.: E4007 2: 2000 High temperature Drawing No.: E4008 3: 3000 Standard type with shalf-protection Drawing No.: E4009 4: 4000 High temperature with shalf-protection Drawing No.: E4010 5: 5000 Extension with cable Drawing No.: E4011 6: 2100 Extremely high temperature Drawing No.: E4012 7: 3100 Extremely high temperature with shaft-protection Drawing No.: E4013
B	**Power supply** A: 24VAC B: 110~120VAC C: 220~240VAC	**Power supply** A: 24VAC B: 110~120VAC C: 220~240VAC
220	**Shaft length** 80: 80mm 220: 220mm 470: 470mm (the length can be customized on request)	**Shaft length** 80: 80mm 220: 220mm 470: 470mm (the length can be customized on request)
T1	**Paddle dimension(mm)** T1: 100x30x1.8 T2: 80x30x1.8 T3: 65x80x1.8 L: 50x30x1.8 L2: 60x40x1.8 N: 100x30x1.8 V: 190x64x1.8	**Paddle dimension(mm)** T1: 100x30x1.8 T2: 80x30x1.8 T3: 65x80x1.8 L: 50x30x1.8 L2: 60x40x1.8 N: 100x30x1.8 V: 190x64x1.8
F	**Accessories** F: Flange T: Fixture S: Hexangular nut	**Accessories** F: Flange T: Fixture S: Hexangular nut

Selection notice:
1. The hole size of SR and ST series is G1-1/2"
2. Confirm voltage, 24VAC, 110~120VAC, or 220~240VAC, 50/60Hz
3. Confirm installation, top-mounted or lateral mounted
4. Check specific gravity of detected medium
5. Check the paddle size whether to meet the flange or the hole of wall of tank
6. ST high temperature type can reach to 200°C; ST2100 / ST3100 can reach to 450°C

- Special shaft sealing for dust-proof
- Rotating torque can be adjustable
- Small and compact design for simple mounting
- Stainless steel mechanical parts and robust gear motor make maintenance free
- Easy installation at container
- Suitable to detect very light bulk solids
- Hole thread is 3/4"PF

IP66 CE RoHS

Paddle (mm)

T1 Type	T2 Type	T3 Type	L1 Type	L2 Type	N Type	V Type
						
Order No.:SR1000T1	Order No.:SR1000T2	Order No.:SR1000T3	Order No.:SR1000L1	Order No.:SR1000L2	Order No.:SR1000N	Order No.:SR1000V
100×30×1.8	80×30×1.8	65×80×1.8	50×30×1.8	60×40×1.8	100×30×1.8	190×64×1.8

Notice: Sizes of paddles and of shafts are avaliable to be customized.

Drawing

Page	>>> P.235–237

Order information

SR / ST	1000	B	52	T1	F
Series	Standard type	110~220VAC	52mm	100×30×1.8	Flange

Series	SN
1000	**Probe type** 1: 1000 Standard — Drawing No.: E4007 2: 2000 High temperature — Drawing No.: E4008 3: 3000 Standard type with shaft-protection — Drawing No.: E4009 4: 4000 High temperature with shaft-protection — Drawing No.: E4010 5: 5000 Extension with cable — Drawing No.: E4011
B	**Power supply** A: 24VAC B: 110~120VAC C: 220~240VAC
52	**Shaft length** **52**: 52mm (the length can be customized on request)
T1	**Paddle dimension(mm)** T1: 100x30x1.8 T2: 80x30x1.8 T3: 65x80x1.8 L: 50x30x1.8 L2: 60x40x1.8 N: 100x30x1.8 V: 190x64x1.8
F	**Accessories** F: Flange T: Fixture S: Hexangular nut

Selection notice:

1. The hole size of SN series is G3/4"PF
2. Confirm voltage, 24VAC, 110~120VAC, or 220~240VAC, 50/60Hz
3. Confirm installation, top-mounted or lateral mounted
4. Check specific gravity of detected medium
5. Check the paddle size whether to meet the flange or the hole of wall of tank

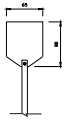
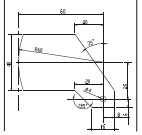
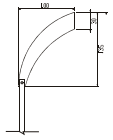
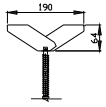
- Suitable for almost all kinds of materials
- Resistant to dust, static electric feeding, gum-ming, high temperature and pressure
- Maintenance free
- Adjustable Voltage supply
- Rotating housing
- Certificate: EXd ⅡCT6

IP67 CE RoHS Ex

Accessaries

Flange	Order No.	Drawing No.	Fixture	Order No.	Drawing No.
	0607F	E4020		0607X	E4022

Paddle(mm)

T1 Type	T2 Type	T3 Type	L1 Type	L2 Type	N Type	V Type
						
Order No.:SR1000T1	Order No.:SR1000T2	Order No.:SR1000T3	Order No.:SR1000L1	Order No.:SR1000L2	Order No.:SR1000N	Order No.:SR1000V
100×30×1.8	80×30×1.8	65×80×1.8	50×30×1.8	60×40×1.8	100×30 1.8	190 64×1.8

Notice: Sizes of paddles and of shafts are possible to be customized.

Drawing

Page	>>> P.236–237

Order information

SE	1000	A	80	T1	F	4
Series	Standard type	Power supply	length	Size of paddles	Installation	Probe material

SE	**Series No. of rotating paddle level switches - Ex-proof type**
1000	**Type** 1: 1000 Standard Drawing No.: E4014
A	**Power supply** A: 24VAC, frequency 50/60Hz, 3RPM, steering CW, operating torque > 0.8kgf/cm, power consumption < 2.5W B: 110~120VAC, frequency 50/60Hz, 3RPM, steering CW, operating torque > 0.8kgf/cm, power consumption < 2.5W C: 220~240VAC, frequency 50/60Hz, 3RPM, steering CW, operating torque > 0.8kgf/cm, power consumption < 2.5W
80	**Length of shaft (mm)** Standard length: L = 80 Available range: L = 80~1200
T1	**Paddle dimension (mm)** T1: 100×30×1.8 T2: 80×30×1.8 T3: 65×80×1.8 L: 50×30×1.8 L2: 60×40×1.8 N: 100×30×1.8 V: 190×64×1.8
F	**Fitting** F: Flange T: Fixture S: Hexangular nut
4	**Probe material** 4: Stainless steel 304 6: Stainless steel 316

Selection notice:

1. The hole size is G1-1/2"-n11
2. Confirm voltage, 24VAC, 110~120VAC, or 220~240VAC, 50/60Hz
3. Confirm installation, top-mounted or lateral mounted
4. Check specific gravity of detected medium
5. Check the paddle size whether to meet the flange or the hole of wall of tank

- Auto-learning function, through buttons, without calibration, for defferent medium with diffferent density
- Thorough metal construction switches are sturdy and durable
- Large vibrating range and the amplitude up to 10mm for the weak sticky materials hanging on the fork
- Ultra red LED offers an immediate warning for on-site detection
- Suitable for measurement of level of liquid, particulate and dense materials

IP67 CE RoHS

Accessories

Type	Socket Order No.(Only for VR4000)						Drawing No.
	C	02	L	5	C	12	
 L Type	C: Cable	Length 02: 2M 05: 5M 10: 10M	Connecter L: Angled	Core 4: 4 5: 5	Material R: PUR C: PVC F: FEP	Socket size 12: M12	E4019

Type	Flange	Order No.	Drawing No.	Fixture	Order No.	Drawin No.
VR1000 VR2000 VR3000		0607F	E4020		0607X	E4022
VR4000		0608F	E4021		0608X	E4023

Drawing

Page >>> P.236–237

Order information

VR	1	02K	22	2	S	T
Series	Standard type	2000mm	24VDC±10%	Flange	Standard type	Teflon

VR	**Series No. of Vibrating Fork Level Switches**
1	**Fork type:** 1:VR1000 Standard L=240 mm Drawing No.: E4015 2:VR2000 Extention，L=300mm~4000mm Drawing No.: E4016 3:VR3000 Extention with cable，L=700mm~20000mm Drawing No.: E4017 4:VR4000 Mini，L=127mm Drawing No.: E4018
02K	**Fork length:** For VR 1000 & VR 4000, this blank is 000 For VR 2000 & VR 3000, this blank should be filled in according to the length It should be displayed by K if the length is over 1000mm. (EX.1000mm=01K ; 2500mm=2K5)
22	**Power input and output mode** 11：20~60VDC & 20~250VAC 50~60Hz (Relay output SPDT 4A/250VAC or 4A/60VDC) 22：24VDC±10%(4~20mA & 0-10VDC output) 33：20~60VDC(NPN & PNP output)
2	**Mounting method:** 1: G1-1/2"-n11 thread for VR1000~VR3000 2: Flange(thread for VR1000~VR3000) 3: Fixture(thread for VR1000~VR3000) 4: G1 thread for VR4000 5: 3/4"NPT only thread for VR1000
S	**Protection type:** S: Standard
T	**Fork materials:** 4: 304 stainless steel - for week acidic or alkalescent substances 6: 316 stainless steel - for hygienic or foodstuff substances T: Stainless steel with Teflon - for strong acidic or alkali substances

- Large vibrating range, up to 10mm, can avoid of error made by weak sticky materials hanging on the fork
- With auto-learning function, it is suitable for detecting the level of tank with solids, pellets, powders, and liquid
- Capable to recognize mediums with different density
- By overcoming vibration absorption occurred while installing on the wall of tank, this level switch can avoid of error made by noise interference
- Certificate: EXd II CT6

IP67 CE RoHS Ex

Accessaries

Type	Flange	Order No.	Drawing No.	Fixture	Order No.	Drawin No.
VE1000		0607F	E4020		0607X	E4022

Drawing

Page >>> P.237

Order information

VE	1	240	1	1	4
Series	Standard type	Fork length	Input and Output	Mounting method	Fork materials

VE	**Ex-proof Vibrating Fork Level Switches**
1	**Fork type:** 1:VE1000 Standard, L=240 mm Drawing No.: E4024
240	**Fork length:** Standard length: L = 240mm Avaliable range: L = 300~4000mm
1	**Power input and output mode** 1：20~60VDC & 20~250VAC 50~60Hz (Relay output SPST 4A/250VAC or 4A/60VDC) 2：24VDC±10%(4~20mA & 0-10VDC output)
1	**Mounting method:** 1: G1-1/2"-n11 2: Flange 3: Fixture 4: 3/4"NPT (other mounting is avaliable on request)
4	**Fork material** 4: Stainless steel 304 6: Stainless steel 316 (other material is avaliable on request)

- Simple construction,concise design
- Reliable working,and long duration up to two millions times
- Anticorrosive,high resistance to acid
- Certificate:CE,RoHS

IP68 CE RoHS

Order information

Order No.	LS0001	LS0002	LS0003
Type	Standard	High temperature	Strong acid / Alkali
Sensing medium	Liquid		
Electrical design	DC / AC		
Output	NO / NC		
Operating voltage	MAX.240V AC/200V DC		
Current rating	0.5A (240V AC/DC)		
Socket	M18 thread		
Capacity	70W		
Sensing degree	±30°		
Storage humidity	20%~70%		
Operating humidity	20%~70%		
Operating temperature	-20℃~80℃	-20℃~120℃	-20℃~100℃
Ambient temperature	-20℃~80℃	-20℃~120℃	-20℃~100℃
Ambient pressure	10 bar		
Contact resistance	80 Ω		
Housing material	PBT+30%GF	PA66+30%GF	PP+30%GF
Connection	1m PVC cable	1m PUR cable	1m PUR cable
Drawing No .	E4025	E4025	E4025

Notice: PP is allowed to be used under the conditions with PH 0~14.

Drawing

Page >>> P.237

- Simple construction,concise design
- Reliable operation and long lifetime
- Anticorrosive,high resistance to acid
- Enhance resistance to electromagnetism
- Stainless steel

IP67 CE RoHS

Accessaries

Flange	Order No.	Drawing No.	Fixture	Order No.	Drawing No.
	0607F	E4020		0607X	E4022

Drawing

Page >>> P.237

Order information

Order No.	LS1001	LS1002
Electrical design	AC/DC	
Output	NO / NC	
Operating voltage	19~60VDC/14~250VAC	
Current rating	3(1)A/250VAC	
Short circuit	NO	
Reverse polarity	NO	
Sensing degree	±15°	
Storage humidity	20%~70%	
Operating humidity	20%~70%	
Operating temperature	-20℃~200℃	
Ambient pressure	10 bar	
Overload	NO	
Housing material	Stainless steel 304	Stainless steel 316
Drawing No.	E4026	E4026