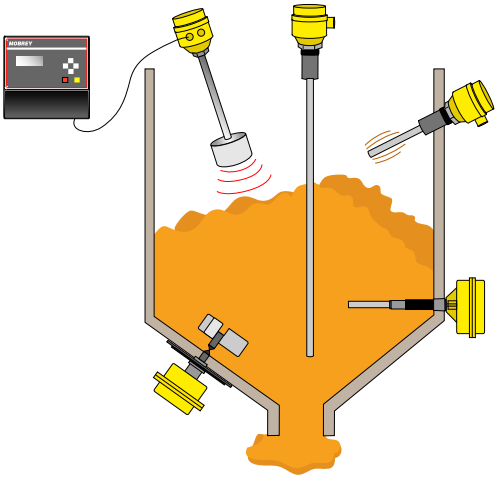
process measurement solutions

solartron mobrey

The
dry products
level control catalogue

Dry products level measurement and control from Solartron Mobrey

The measurement and control of dry products is important in all industries, from mining through to fine chemicals. Such is the diversity of product to be measured that no single instrument is capable of reliable operation in all materials.
Solartron Mobrey offers a range of technologies to ensure that users are able to select the most appropriate instrument for the application.



Point level switches for alarm or control duty

- Series PLS Paddle level switch
- Series CLS RF Capacitive level switch
- Series VLS Vibrating Rod level switch

Level transmitters for control duty

- Series ULT Ultrasonic non-contact level transmitter

Product selection guide

	Point level switches						Continuous level		
	Paddle PLSIC	Paddle PLSH	Capacitance CLSK	Capacitance CLSH	Vibrating rod VSLK	Vibrating rod VSLH	Ultrasonic ULT15	Ultrasonic ULT30	Ultrasonic ULT60
Duty									
High level alarm	■	■	■	■	■	■			
Low level alarm	■	■	■	■	❑	❑			
Level measurement							15m	30m	60m
Material									
Powder	■	■	■	■	■	■	■	■	■
Granular	■	■	■	■	■	■	■	■	■
Pellets	■	■	■	■	■	■	■	■	■
Aggregate	■	■					■	■	■
Material density									
Very low	■	■	■	■	❑	❑	■	■	■
Low	■	■	■	■	■	■	■	■	■
Medium	■	■	■	■	■	■	■	■	■
High	■	■	■	■	■	■	■	■	■
Very high	■	■					■	■	■
Material moisture									
Low	■	■	■	■	■	■	■	■	■
High			■	■			■	■	■
Material coating									
Minimal	■	■	■	■			■	■	■
Heavy build-up			■	■			■	■	■
Corrosive									
Low	■	■	■	■	■	■	■	■	■
High					■	■			
Installation									
Vertical (top)	■	■	■	■	■	■			
Horizontal (side)	■	■	■	■	■	■			
Non-contact (top)							■	■	■
Temperature									
Ambient	■		■	■	■	■	■	■	■
Low (to -20°C)	■		■	■	■	■	■	■	■
High (to +110°C)		■	■	■	■				
Pressure									
Atmospheric	■	■	■	■	■	■	■	■	■
Low 2 bar	■	■	■	■	■	■	■	■	■
Medium 10 bar					■	■			
Atmosphere									
Dusty	■	■	■	■	■	■	■	■	■
Steamy					❑	❑			
Vibration									
Low	■	■	■	■	■	■	■	■	■
High	■	■	■	■					

Recommended ■ Possible ❑ Not recommended □

Some typical dry products bulk densities (Kg/m³)

Very low	
Up to 100kg/m³	
Powdered carbon	80
Bread crumbs	96
Polyethylene flakes	95
Low	
100 - 250kg/m³	
Soap flakes	160
Ground cork	160
Charcoal	208
Sawdust	210
Medium	
250 - 1000kg/m³	
Bran	256
Rolled oats	304
Powdered milk	450
Flour	596
Grain	6-800
Granulated sugar	849
High	
1000 - 2000kg/m³	
Soot	1024
Coal	1100
Fine salt	1201
Cement	1506
Dry sand	1602
Very high	
Over 2000kg/m³	
Gravels	2000-2500
Aggregates	2000-2500
Earth	2000
Slag	2100

Technical specifications

Series PLS Paddle switches

cost effective

Traditional switch used to detect high or low levels of most free flowing bulk solids and powders. The paddle rotates freely in the absence of material but is impeded when material is present, operating a microswitch output

Features
Time proven
Simple and reliable
Top or side mounting
Safepoint failsafe model with fault relay

Applications
Aggregates, granular, pelletised or powdered dry products
High, intermediate or low level alarm

Applications	Free flowing dry products, very low - very high density
Power supply	98V ac to 270V ac 24V dc +/- 15%
Output	Standard model: 2 x SPDT control relays, 15A at 250V ac
Conduit connection	2 x ¾" NPT (NPT models) or 2 x M20 (BSPT models)
Operating temp.	-40°C to +149°C All high temperature models: -40°C to +399°C
Operating pressure	2 bar maximum
Productside material	Type 304 stainless steel
Housing material	Aluminium alloy, powder paint coated
Housing rating	IP66
Approvals (pending)	ATEX II 1/2 D

Series CLS RF Capacitance probes

build up compensator

This self calibrating RF capacitance level switch includes a microprocessor controlled Powershield probe which overcomes the effects of product build up on the probe, allowing reliable use in a wide range of free flowing and sticky dry products

Features
No moving parts
Material build up compensator
Self calibrating
Adjustable time delay
Top or side mounting
Rigid or flexible probe

Applications
Granular, pelletised or powdered dry products
Sticky or clinging products
Sludges and slurries
High, intermediate or low level alarm

Application	Powders and granules Ø<20mm, very low - high density Minimum DK: 2
Power supply	104V ac to 245V ac 50/60Hz 21.6 to 25.2V dc
Output	1 x SPDT control relay, 2.5A at 250V ac
Conduit connection	2 x ¾" NPT (NPT models) or 2 x M20 (BSPP models)
Response time	Adjustable 1 to 128 seconds
Operating temp.	-20°C to +100°C
Operating pressure	7 bar maximum
Productside material	Type 304 stainless steel probe Polypropylene powershield
Housing material	Glass filled nylon, paint coated
Housing rating	IP65
Approvals	ATEX II 1 D

Series VLS Vibrating Rod switches

no clogging

Single probe design of vibrating level switch for free flowing materials which eliminates the problems of clogging and bridging of fork designs

Features
No moving parts
High & low level failsafe
Adjustable time delay
Sensitivity adjustment
Extended probe option
Top or side mounting

Applications
Granular, pelletised or powdered dry products
High, intermediate or low level alarm

Application	Free flowing powders & granules Ø<10mm, low - high density
Power supply	85V ac to 265V ac 50/60Hz 19 - 55V dc
Output	1 x SPDT control relay, 8A at 250V ac
Conduit connection	2 x ½" NPT (NPT models) or 2 x Pg16 (BSPT models)
Response time	Selectable 2 or 5 seconds
Operating temp.	-20°C to +160°C
Operating ressure	10 bar maximum
Productside material	Type 316 stainless steel
Housing material	Al. alloy, powder paint coated
Housing rating	IP67
Approvals (pending)	ATEX II 1 D

Series ULT Ultrasonic measurement

non-contact

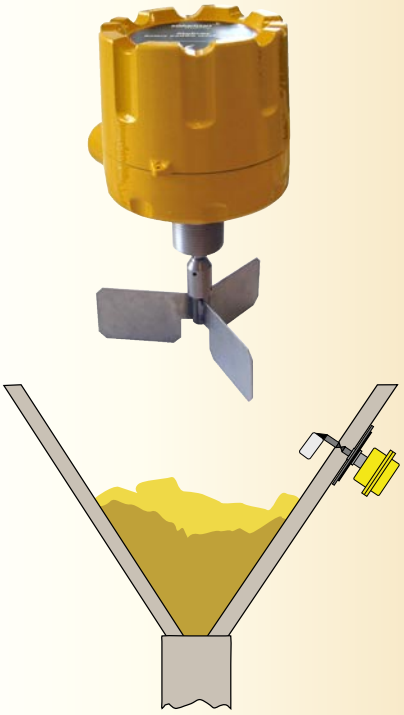
Non-contacting level transmitter which is top mounted on the vessel to give a 4-20mA output proportional to level or volume. Operates over 60m range and will give reliable readout even in high dust conditions

Features
4-20mA/HART/RS485 output
Integral alarm relay
Ranges of 15, 30 and 60m
Integral aiming device
24V dc or 115/230V ac models

Applications
Aggregates, granular, pelletised or powdered dry products
Sludges and slurries

Applications	All dry products
Power supply	85V ac to 255V ac 50/60Hz 10.5 to 40V dc
Output	1 x SPDT relay 3A at 250Vac 4-20mA/HART/RS485 MODBUS
Connection	4 wire
Conduit connection	2 x ½" NPT ANSI flange models or 2 x Pg16 DIN flange models
Ultrasonic beam angle	5°
Accuracy	+/- 0.2% of measured distance + 0.1% of the range (under reference conditions)
Resolution	+/- 10mm
Operating temp.	-30°C to +75°C
Operating pressure	1.1 bar maximum
Productside material	Polypropylene / Polyurethane / Aluminium
Housing material	Al. alloy, powder paint coated
Housing rating	IP67
Approvals (pending)	ATEX II 1/2 D

Series PLS Paddle level switch



The paddle switch may be used as either a high or low level limit switch for dry products and is easily mounted through the wall of the vessel such that the paddle protrudes inside the vessel. A small electric motor drives a paddle which rotates freely in the absence of material.
When the paddle is impeded by the presence of material, the motor rotates within the housing to actuate a microswitch and signal an alarm. As soon as the paddle is stopped from rotating, power to the motor is cut, thus extending motor life. Once the material level falls the motor is returned to its normal position and the paddle begins to rotate again.

The failsafe Safepoint model incorporates patented magnetically operated detection circuits which can differentiate between paddle rotation being stopped by material presence or by any electrical or mechanical failure of the product, then operate an independent fault relay.

Application
Series PLS switches can be used with granular, pelletised and powdered dry products and may be used in high level applications with materials over 160kg/m^3 and low or intermediate applications with materials over 80kg/m^3.

Selection
Using the ordering code below as a selection guide, specify the particular PLS model required for your application.
Note that the 24V dc motor models have shorter life than ac models and are recommended for low level duty only. Refer then to the paddle and accessories selection guide on the adjoining page to select and specify the appropriate paddle and any mounting accessories.

Paddle switch ordering information: Order paddle and accessories using part numbers on adjoining page

PLS	Paddle Level Switch series	
Code	Model	
K	Standard model, 2 x SPDT alarm relays	
H	High temperature standard model, 2 x SPDT alarm relays	
P	Failsafe Safepoint model with fault relay and 1 x SPDT alarm relay	
T	High temperature failsafe Safepoint model with fault relay and 1 x SPDT alarm relay	
Code	Mounting	
B1	R 1 ½" BSPT mounting (except high temp.)	
N1	1 ¼" NPT mounting (all models)	
Code	Housing	
3	Aluminium alloy housing	
Code	Voltage	
0	115V ac motor voltage	
1	240V ac motor voltage	
2	24V dc motor voltage (low level duties only)	
Code	Approvals	
A	ATEX Dust approval - Pending	
U	US General Electrical and Dust approval - Pending	
Z	No hazardous area approvals	

PLS	**K**	**B1**	**3**	**1**	**Z**	Order paddles and accessories separately

Technical specification

Power supply	115V ac +/- 15%, 50/60Hz 230V ac +/-15%, 50/60Hz 24V dc +/- 15%	Operating temp.	Standard: -40°C to +149°C Safepoint: -40°C to +121°C All high temperature models: -40° C to +399°C
Power consumption	4W max		
Output	Standard model: 2 x SPDT control relays, 15A at 250V ac Safepoint model: 1 x SPDT control relay, 5A at 250V ac 1 x SPDT fault relay, 5A at 250V ac	Ambient temp.	Standard: -40°C to +93°C Safepoint: -40°C to +65°C
		Housing material	Aluminium alloy, powder paint coated
		Housing rating	IP66
		Weight	Typical standard model: approx. 4kg
Conduit connection	2 x ¾" NPT (NPT models) or 2 x M20 (BSPT models)	Approvals (Pending)	ATEX II 1/2 D UL and CSA CLI Div 1 & 2, Gr. C,D, CLII Div 1 & 2, Gr. E,F,G
Operating pressure	2 bar maximum		
Wetside material	Type 304 stainless steel		

Paddle selection

		Scimitar	Single vane	3 Vane std	3 Vane large	2 Vane	4 Vane	Triangular	Belt vane
									
Order part no.		**P4193**	**P4145**	**P4146**	**P4141**	**P4135**	**P4156**	**P4144**	**P4137**
Application									
Heavy material >2000 kg/m³ >40mm Ø	high								■ *1
	low								■ *1
Heavy material >2000 kg/m³ <40mm Ø	high		■ *1			■ *1	■ *1		
	low		■ *1			■ *1	■ *1		
Medium material 250 kg/m³ to 1000 kg/m³	high	■		■			■	■	
	low	■	■	■			■	■	
Light material up to 250 kg/m³	high	■			■			■	
	low	■			■			■	
Mounting		Insertable	Insertable	Plate or flange	Plate or flange	Plate or flange	Plate or flange	Plate or flange	Plate or flange
Notes		*1 Flexible coupling required					■ = Recommended		

Flexible coupling

The flexible coupling works to absorb heavy loads, side loads and loads caused by product surges. A flexible coupling should always be used with heavy materials and in top mount installations where a solid shaft extension is used.

Shaft extensions

Many top mount installations require that the paddle extends into the vessel to a pre-determined level. Solid shaft extensions in stainless steel are available to customer order up to 3600mm in length. Always specify a flexible coupling and a shaft guard with a solid shaft extension.

Order part no. **P-1175-2/****mm**

Alternatively a 2000mm stainless steel flexible cable extension is available which may be cut to length on site and eliminates the need for the flexible coupling and shaft guard.

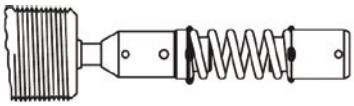
Order part no. **P-1176-2**

Shaft guard

A stainless steel shaft guard should be specified when a solid shaft extension is required. The shaft guard should be ordered as the same length as the shaft extension.

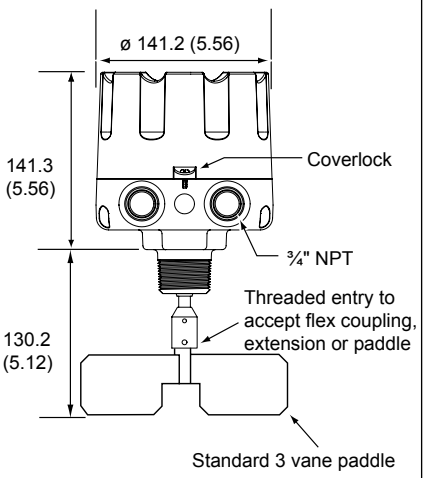
Order part no. **P-1174-2/****mm**

Flexible coupling



Order part no. **P3335**

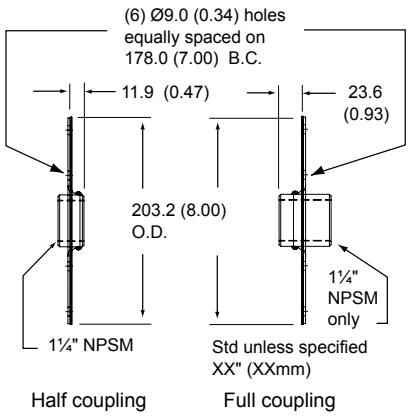
Dimensions: standard model



Mounting plate

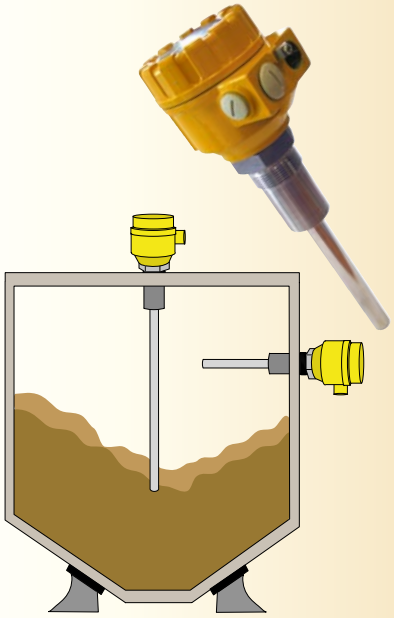
A mounting plate allows the paddle switch to be mounted from the outside of the vessel to a curved or flat surface. Two types are available:
(Note: use only with NPT thread mounting paddle switches)
Half coupling style in stainless steel for use in side mount applications.
Full coupling style in stainless steel for use in top mount applications where a shaft extension and shaft guard is required. (Note: included as standard on high temperature option.)

Mounting plate



Half coupling: order part no. **P0112**
Full coupling: order part no. **P0113**

Series VLS Vibrating rod level switch



The vibrating rod level switch is the perfect solution for single point level switching in free flowing solids across a wide density range, from fine powders to grains.
The single rod design provides the solution to tuning forks which may become blocked or bridged.
The vibration rod is energised and kept in resonance by an electronic circuit. When covered by material the damping of the vibration will be detected by the electronics which initiate the switching of the output relay after a built-in programmable time delay.

Application
The VLS is designed to provide high or low level switching in silos or bins containing free-flowing powders and granular materials such as carbon black, sugar, grain, cement, lime and sand with a material bulk density of 50 kg/m^3 or more.
Requiring only a 1½" BSP/NPT socket, either on the top or in the sidewall of the silo, the unit is easy to install and simple to commission.

Selection
Using the ordering code below as a guide, specify the particular switch and probe style for your application.

Ordering information

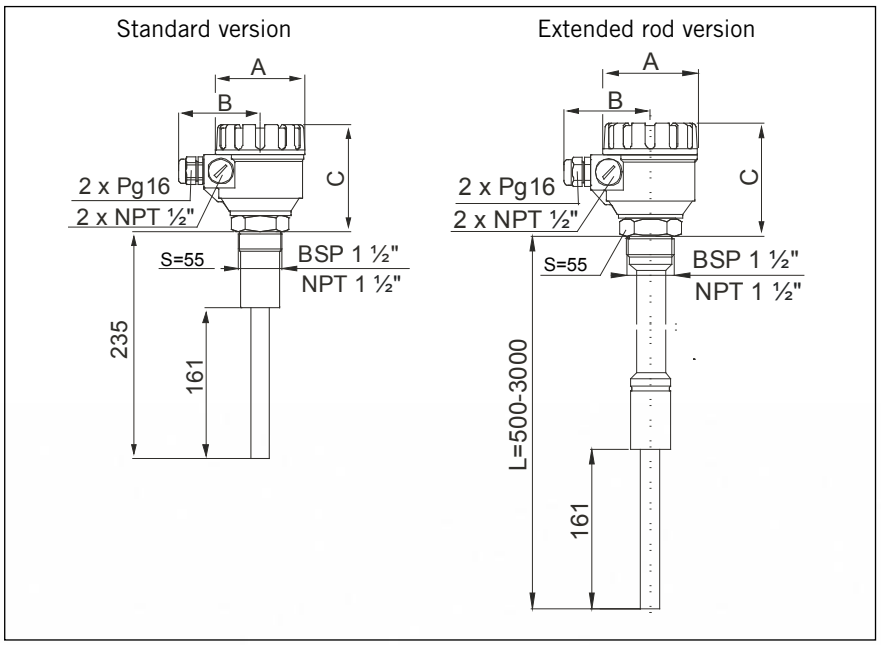
VLS	Vibrating Rod Level Switch series						
	Code	Model					
	K	Standard model, 1 x SPDT alarm relay					
	H	High temperature standard model					
		Code	Mounting				
		B	R 1 ½" BSPT mounting				
		N	1 ½" NPT mounting				
			Code	Insertion length			
			1	Standard rod: 235mm insertion length			
			3	Extended rod: 500 to 3000mm insertion length			
			4	Cable extended: 1000 to 20000mm insertion length			
			8	Extended rod with adjustable gland: 500 to 3000mm			
				Code	Housing		
				3	Aluminium alloy housing		
					Code	Voltage	
					1	85 - 265V ac	
					2	19 - 55V dc	
						Code	Approvals
						A	ATEX Dust approval - Pending
						U	US General Electrical and Dust approval - Pending
						Z	No hazardous area approvals
							Code / Special
							/** Extension length (rod, cable)
VLS	**K**	**B**	**1**	**3**	**1**	**Z**	Typical model number

Specification

Power supply	85V ac to 265V ac 50/60Hz 19 - 55V dc	Ambient temp.	-20°C to + 60°C
		Operating pressure	10 bar maximum
Output	1 x SPDT control relay, 8A at 250V ac	Wetside material	Type 316 stainless steel
Conduit connection	2 x ½" NPT (NPT models) or 2 x Pg16 (BSPT models)	Housing material	Aluminium alloy, powder paint coated
		Housing rating	IP67
Response time	Selectable 2 or 5 seconds	Weight	Approx. 2kg
Operating temp.	Standard model -20°C to +110°C High temp model -20°C to +160°C	Approvals (Pending)	ATEX II 1 D

Options

Dimensions



Sensitivity selection
Bulk materials vary greatly in their characteristics.
The VLS will operate in bulk materials with density over 50kg/m^3 - the user must however set the sensitivity selection switch to either LOW for products with density less than 100kg/m^3 or to HIGH for products with density greater than 1000kg/m^3.

Failsafe operation
Each VLS may be set to either failsafe high or failsafe low using a switch in the electronics housing.

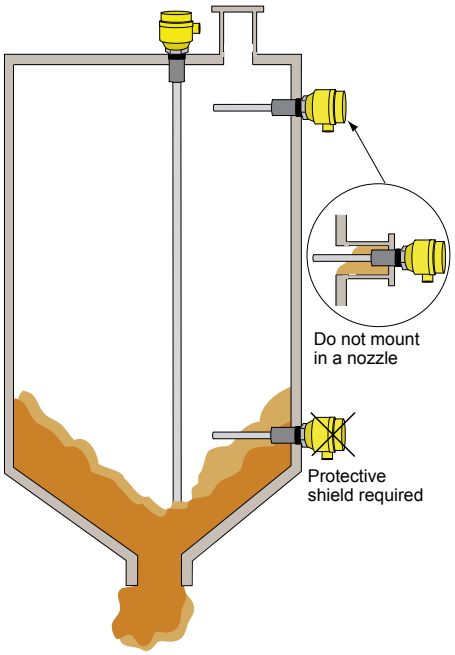
Side mounting
Ideal for use as a failsafe high level switch. When used in a low level application, it is desirable to protect the probe from excessive pressure exerted by the medium and from direct impact when the silo is being filled. A simple shield mounted above the probe is sufficient.

Top mounting
Either in standard length or extended length, mounted vertically in the silo. The cable extended probe which has a length of tough stainless steel cable between probe and mounting point, is ideal for very tall silos.

Adjustable
A top mounting extended probe fitted with an adjustable gland which allows the user to fix the probe at the desired switching level.

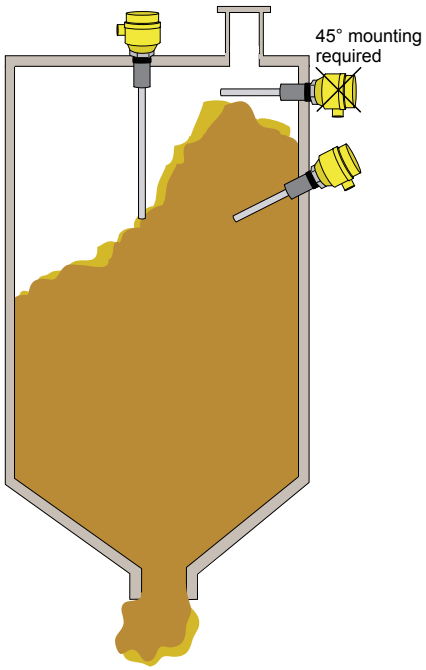
Installation examples

Granular material

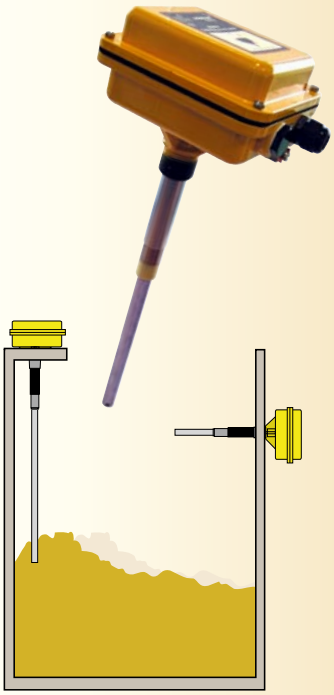


	High level	Low level
Standard	Side mount	Side or bottom mount
Pipe extended	Top mount	Side or bottom mount
Cable extended	Top mount	Top mount

Powders



Series CLS RF Capacitance level switch



The CLS level switch is a microprocessor based, self calibrating level control with no moving parts, operating using the RF Capacitance principle.
Used for either high or low level alarm in silos and hoppers of dry products, the CLS detects the presence or absence of products by monitoring the change in capacitance around the probe as it becomes covered or uncovered.
CLS will operate reliably in metal, plastic or wooden silos.
A built-in "Power Shield" is used to overcome the effects of product build-up on the probe when used with sticky or viscous products.

A variety of probe styles are available to allow side or top mounting with the facility for users to modify the probe to suit application constraints.

Application
Series CLS switches can be used with any free flowing granular, pelletised or powdered dry product, and also with difficult dry products which have a tendency to coat or build-up, such as animal feed and foundry sand.

Selection
Using the ordering code below as a guide, specify the particular switch and probe style required for your application.

Ordering information

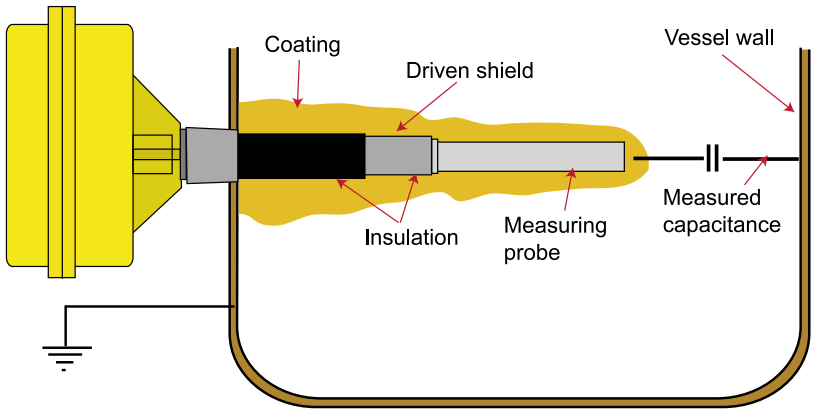
CLS	RF Capacitance Level Switch Series						
	Code	Model					
	K	Standard model, 1 x SPDT alarm relay					
		Code	Mounting				
		B	G 1" BSPP mounting with power shield				
		N	1 ¼" NPT mounting with power shield				
			Code	Insertion length			
			1	200mm Standard rod: 344mm insertion length			
			2	100mm Short rod: 244mm insertion length			
			3	880mm Long rod: 1024mm insertion length			
			4	Wire rope probe: 10000mm insertion length			
				Code	Housing		
				4	Glass filled nylon housing		
				9	Remote electronics in glass filled nylon housing		
					Code	Voltage	
					1	110/230V ac / 24V dc selectable	
						Code	Approvals
						A	ATEX Dust approval
						U	US General Electrical and Dust approval - Pending
							Code	Special
							/**	Remote electronics cable length if required
CLS	**K**	**B**	**1**	**4**	**1**	**A**		Typical model number

Specification

Power supply	104V ac to 245V ac 50/60Hz 21.6 to 25.2V dc	Ambient temperature	-10°C to + 50°C
Minimum DK	2	Operating pressure	7 bar maximum
Output	1 x SPDT control relay, 2.5A at 250V ac	Wetside material	Type 304 stainless steel probe
			Polypropylene powershield
Conduit connection	2 x 3/4" NPT (NPT models) or 2 x M20 (BSPP models)	Housing material Housing rating	Glass filled nylon, paint coated IP65
Response time	Adjustable 1 to 128 seconds	Weight	Approx. 2.3kg with standard rod
Operating temperature	-20°C to +70°C *	Approvals	ATEX II 1 D

* Operating temperatures up to 100°C are possible with remote electronics, higher on request.

The Power Shield product build-up compensator



Simple capacitance probes operate by driving the probe to apply an RF signal between the stainless steel probe and the vessel wall. With the probe in free air, which has a dielectric value of 1.0, electronic circuitry measures the standing capacitance around the probe. When the air is displaced by material with a higher dielectric value the capacitance measured increases and an alarm can be triggered.

In free flowing materials of sufficient dielectric value this type of probe is generally acceptable. However, any material build-up on the probe will quickly change the capacitance and be seen as a false level.

The CLS switch solves this problem by the inclusion of a Power Shield. This is a second active section of the probe, termed the driven shield, which is insulated from the measuring probe. See illustration above.

The Power Shield is energised with the same voltage frequency and phase as the measuring probe and therefore no potential can be measured between the power shield and probe. This effectively creates a barrier or shield and prevents the probe from monitoring capacitance to the adjacent sidewall, substantially minimising the effect of build-up in the majority of cases.

Calibration

Having set the site adjustable High \ Low switch to the desired position for failsafe high of low level duty, the CLS must then be calibrated for the product in the silo. Automatic calibration is simply achieved by pressing one button when the probe is uncovered and then a second when the probe is covered by the product.
Sometimes it is not possible to fill the silo so a manual calibration facility is provided where the user manually enters a value of capacitance equivalent to a covered probe. The manual gives full guidance and a table of typical capacitance values.

Time delay

The CLS has a user adjustable time delay facility from instant to 128 seconds, which may be set to delay switching from covered to uncovered or vice versa.

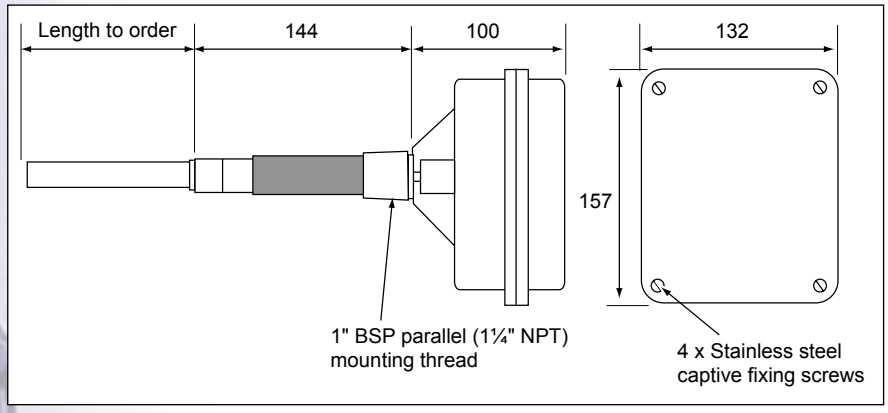
Probe modification on site

It may be that application constraints prevent the use of the standard probe supplied. In such cases, local modification is permissible within limits. As the sensitivity of the CLS is proportional to the surface area of the sensing probe, any modification should maintain the surface area presented to the product in the silo unless the product has high density and dielectric properties.

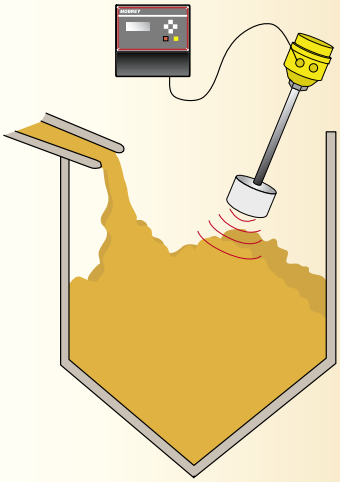
Remote electronics model

For applications where it is desirable to have as access to the calibration function, the electronics can be specified remote from the probe up to a distance of 8m.
Remote mounting of the electronics also allows use of the probe element up to temperatures of 100°C.
Higher temperature versions are possible - consult factory for details.

Dimensions



Series ULT Dry products non-contact ultrasonic level transmitter



The ULT ultrasonic level transmitters are self-contained transmitters for use over a wide range of dry products from powders to bulk solids and aggregates. Narrow beam angles and sophisticated echo processing techniques make these transmitters ideal for measuring difficult materials where other transmitter technologies can not perform.
The transducer is constructed using a tough Polypropylene housing with a closed cell foam face which is immune to most vapours and any condensation.
The electronics module is housed in an Aluminium alloy enclosure and has a docking bay for a programming and display module which may be removed after commissioning if required.
Each transmitter is supplied with an aiming device to ensure that the transducer face can be installed perpendicular to the angle of repose of the material in the vessel, thus maximising the size of the return echo.
All echo processing and signal conversion is carried out in the transmitter electronics module and a 4-20mA signal proportional to the measured variable is available, along with options of HART or RS485 Modbus digital communications.
Integral linearisation using a 32 point look-up table or one of the 10 pre-programmed tank shapes may be used to convert level to volume or mass.
Note: Mounting flange not shown in photograph.

Set-up

ULT may be set up using the plug-in programming module, which has a 5 digit LCD display and bar graph indicator. The E-view software package enables remote programming and monitoring. Using a Hart modem, up to 15 units can be connected to a computer and provides an excellent tool for single and multiple point applications.

Application

ULT may be successfully used on many dry product materials from powders to aggregates.
Whilst the ULT has plenty of power to punch through high dust environments, air blown filling of vessels can cause very high dust levels - in these cases it is recommended to use the next range up transmitter to ensure a good echo is returned.

The following guidelines aid selection of the correct ULT transmitter for your application:

15m range	Small silos, granules, limited dusting
30m range	Medium silos with granules, 20m for powders and heavy dusting granules
60m range	Long range with granules, 50m for powders and heavy dusting granules

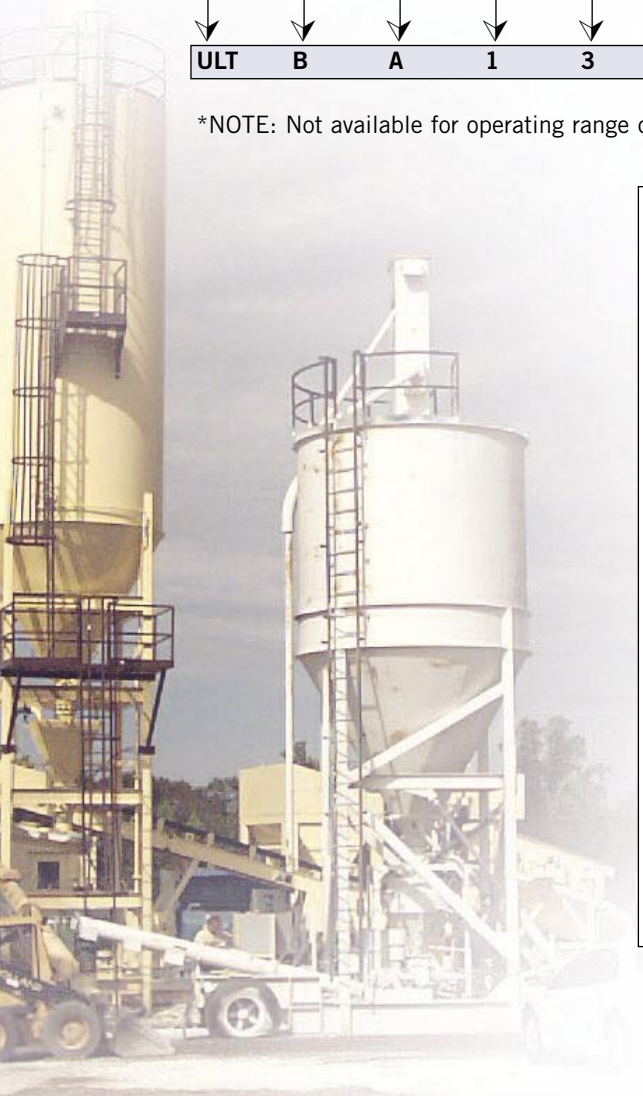
Specification

Power supply	85V ac to 255V ac 50/60Hz
	10.5 to 28V dc/ac
Output	1 x SPDT control relay 3A at 250V ac
	4-20mA / HART / RS485 MODBUS
Connection	4 wire
Conduit connection	2 x ½" NPT (ANSI flange models) or 2 x Pg16 (DIN flange models)
Ultrasonic beam angle	5°
Accuracy	+/- 0.2% of measured distance + 0.1% of the range (under reference conditions)
Resolution	+/- 10mm
Operating temperature	-30°C to +75°C
Ambient temperature	-25°C to + 60°C
Operating pressure	1.1 bar maximum
Wetside material	Polypropylene / Polyurethane / Aluminium
Housing material	Aluminium alloy, powder paint coated
Housing rating	IP67
Weight	15 and 30m models 7kg; 60m model 10kg
Approvals (Pending)	ATEX II 1/2 D

Ordering information

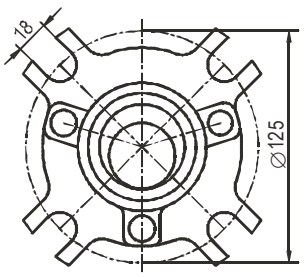
ULT	Ultrasonic Level Transmitter with aiming device						
	Code	Display					
	B	No Display / Programmer fitted					
	D	Display / Programmer fitted					
		Code	Flange				
		A	DN150 PN16 Split flange in Polypropylene*				
		B	DN200 PN16 Split flange in Polypropylene*				
		C	DN300 PN16 Split flange in Polypropylene				
		D	6" #150 Split flange in Polypropylene*				
		E	8" #150 Split flange in Polypropylene*				
		F	12" #150 Split flange in Polypropylene				
		Z	No flange supplied (aiming device is supplied)				
			Code	Operating range			
			1	1.2m to 60m operating range (15kHz) requires DN300/12" flange or larger			
			3	0.6 to 30m operating range (30kHz) requires DN150/6" flange or larger			
			4	0.6 to 15m operating range (30kHz) requires DN150/6" flange or larger			
				Code			
				3	Aluminium alloy housing, powder coat painted		
					Code	Voltage	
					3	85 - 255V ac with relay & 4-20mA & HART	
					5	85 - 255V ac with relay & RS485	
					4	10.5 - 28V ac/dc with relay & 4-20mA & HART	
					6	10.5 - 28V ac/dc with relay & RS485	
						Code	Approvals
						A	ATEX Dust approval - Pending
						U	US General Electrical and Dust approval - Pending
						Z	No hazardous area approvals
ULT	**B**	**A**	**1**	**3**	**3**	**Z**	Typical model number

*NOTE: Not available for operating range code 1

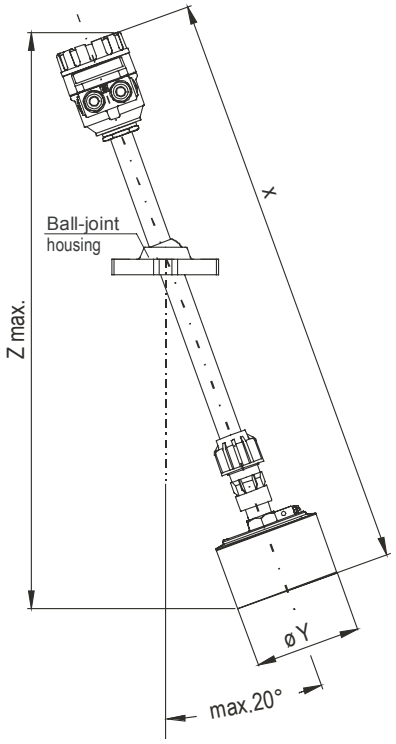


Dimensions mm

Range code	X	Y	Z
1	840	293	855
3 & 4	824	148	814



Ball joint housing (mounts on chosen process mounting flange)



Control unit for use with Series ULT or other 4-20mA transmitter

- 4-20mA / HART input
- Isolated 4-20mA output
- 5 Control relays
- Multi-function back-lit display
- Wall or panel mount

The MCU900 series of wall and panel mounting control units provide comprehensive control functionality for any 4-20mA or HART compatible transmitter. A back-lit display gives clear visual indication of the measured value and status of all inputs and outputs.
Mounted in a non-hazardous area, the MCU900 connects to the transmitter, which may be installed in a hazardous area.
The input signal from the transmitter may be offset, damped, scaled and linearised as required.

The 4-20mA output signal may also be scaled to re-transmit all or just part of the input signal or calculated value.
5 relays are provided and are fully field programmable to perform a wide variety of control, fault indication or alarm duties.
The MCU900 is configured using an integral 6 button keypad and an easy to navigate menu structure. Many popular configurations are "Wizard assisted", enabling fast and accurate programming.
See data sheet IP2031 for full details.

Electrical	
Supply voltage	98V ac-132V ac 50/60Hz / 18VA max 198V ac-254V ac 50/60Hz / 18VA max, 15V dc-30V dc / 9W max
Power consumption	15Vdc to 30Vdc / 9W max.
Current input	4-20mA and/or HART digital communications (Rev. 5) Supplies 23V from 400Ω source resistance
Trigger inputs	2 voltage free contact closures
Current output	4-20mA isolated into 1 Kohm (12 bit)
Relays	5 SPCO, 5A at 240V ac
Cable entry	5 positions pre-drilled. 2 Glands and 3 blanking plugs provided
Cable connection	*Wall mount*: Cage clamp terminal blocks in separate terminal compartment *Panel mount:* 2 part cage clamp terminal blocks at rear
Mechanical	
Material	Polycarbonate
Dimensions	*Wall mount:* 213mm wide x 185mm high x 84mm deep *Panel mount:* Cut out 139 wide x 69 high. Allow 165mm clearance behind panel
Enclosure rating	*Wall mount:* IP65 indoor/outdoor *Panel mount:* IP42 (indoor mount). IP65 Hood kit available
Environmental	Installation category: 115V: Cat.III 230V: Cat.II Pollution degree: 2 Altitude: 2000m max. Relative humidity: 100%
Temperature	-40°C to +55°C. (Use air circ. fan if 3 or more panel mount units are installed in same cabinet)
Approvals	ATEX coding II (1) GD, CENELEC coding [EEx ia] IIC

Ordering information

	Mains powered	24V dc powered
Wall mounting	MCU901WX-A	MCU901WX-A24
Panel mounting	MCU901PX-A	MCU901PX-A24

Solartron Mobrey Limited
158 Edinburgh Avenue, Slough
Berks UK SL1 4UE
Tel: 01753 756600
Fax: 01753 823589
e-mail: enquiries@solartron.com
www.solartronmobrey.com

Solartron Mobrey
19408 Park Row, Suite 320
Houston, TX 77084 USA
Tel: 281 398 7890
Fax: 281 398 7891
e-mail: salesusa@solartron.com
www.solartronusa.com

solartron mobrey
a Roxboro Group company

Solartron Mobrey GmbH	Deutschland	tel: 0211/99 808-0
Solartron Mobrey Ltd	China	tel: 021 6353 5652
Solartron Mobrey sp z o o	Polska	tel: 022 871 7865
Solartron Mobrey AB	Sverige	tel: 08-725 01 00
Solartron Mobrey SA	France	tel: 01.30.17.40.80
Solartron Mobrey SA-NV	Belgium	tel: 02/465 3879