

Mobrey blanket level monitoring

MSL600 for clarifier and settlement vessels



mobrey


EMERSON
Process Management

MSL600 sludge blanket monitoring

The MSL600 sludge blanket monitor is a microprocessor based system, with an abundant range of built-in, display, control and alarm features. Easy to use menu driven programming allows complete configuration of the unit in just a few minutes. Local programming is carried out via an on-board membrane keypad.



Applications

- Primary and secondary clarifiers in municipal and industrial waste water applications
- Circular rotating or static bridge clarifiers
- Rectangular clarifiers with moving or static bridges
- Lamella clarifiers (providing there are no obstructions in the way of the transducer)
- Sludge thickeners (Picket fence thickener)

The principle

The MSL600 provides a means of sensing the presence of the sludge blanket and measuring its depth in the clarifier.

The MSL600 uses the sonar principle, with an ultrasonic pulse transmitted under water. Sophisticated echo processing allows the MSL600 to analyse the pulses of ultrasound which transmit vertically and reflect from the surface of the blanket.

The system captures the ultrasonic echoes reflected from the blanket interface even if the interface between the blanket and supernatant is not clearly defined. Knowing the speed of sound in the supernatant the depth of the sludge blanket is then determined from the time of flight of the echo.

The system

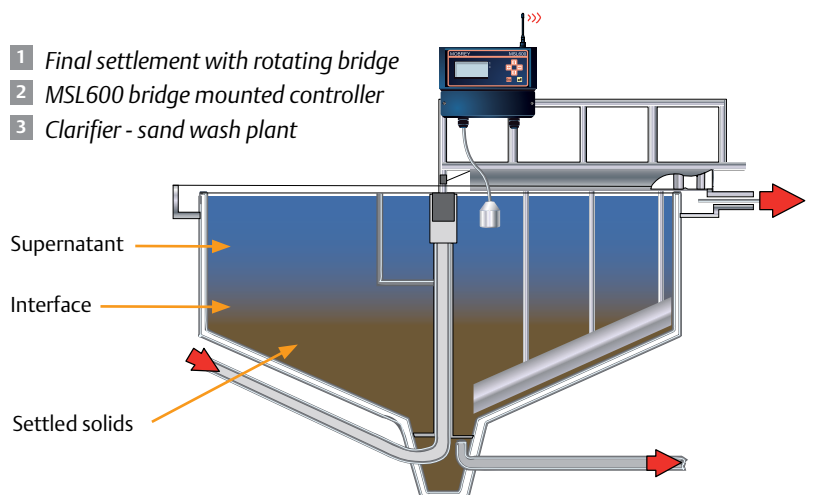
The system comprises an ultrasonic transducer and a bridge mounted control unit. These are specially designed for easy installation on a clarifier tank bridge using a mounting bracket, supplied with the system. The system is optimised for use with clarifiers and thickeners containing municipal and industrial wastewater treatment sludge. The bridge mounted MSL600 is a stand alone unit with a clear display of the tank profile providing a range of current and relay outputs to the user for control and alarm purposes. The MSL600 bridge mounted unit can communicate to an optional remote mounted unit situated off the clarifier bridge, via an integral radio telemetry link with a range up to 500m (line of sight). The radio telemetry option is made available to cater for applications both with and without moving bridges, where transmitting small signals through slip rings or over long distances via expensive cable runs may be problematic.



1 Final settlement with rotating bridge

2 MSL600 bridge mounted controller

3 Clarifier - sand wash plant



Features

Human machine interface

In common with other Mobrey control units the MSL600 makes use of the intuitive Mobrey Human Machine Interface (HMI).

The user can program and interrogate the system using the integral keypad and Liquid Crystal Display (LCD) without the need for regular reference to the manual. For the more experienced user the HMI also facilitates rapid navigation of the menu structure and system parameters.

Self cleaning

A key feature of the MSL600 is its transducer self cleaning facility.

The system is designed for applications where the transducer may be mounted in a hostile environment where there is the likelihood of the transducer becoming coated or otherwise fouled. A fouled transducer is far less efficient at transmitting sonar pulses into the supernatant.

Experience suggests that any moving mechanical cleaning devices are themselves prone to fouling. It is for this reason that the MSL600 uses an air purge cleaning function. Extensive site trials show that this method is very effective in keeping the face of the transducer free from any coating growth or build up of floating debris. Using the automatic self cleaning system on the MSL603 transducer - which is powered by an integral compressor within the MSL600 controller - maintenance cycles are reduced, thus reducing the lifetime cost of the system.

Mounting bracket

Each MSL600 transducer is supplied complete with a universal mounting bracket and transducer guard which is available in either galvanised steel or stainless steel.

Integral radio link*

With the addition of the MSL601 all the outputs from the MSL600 may be transmitted to a remote location.



- 1 Using the HMI
- 2 MSL600 installed on a covered tank
- 3 Integral radio link
- 4 MSL transducer installation
- 5 Rotating bridge installation

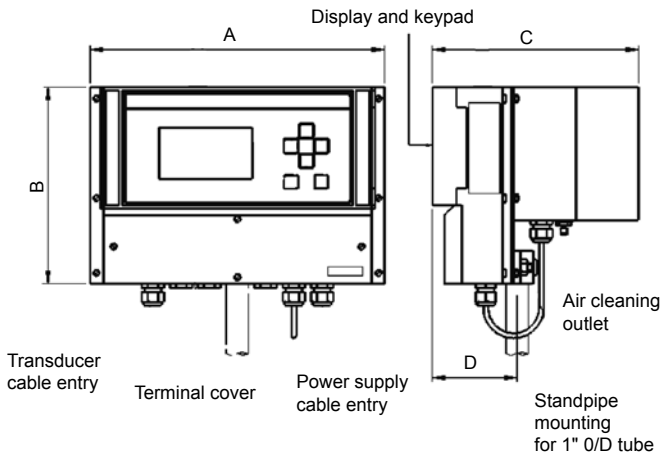
* Radio link not available in the USA or Canada



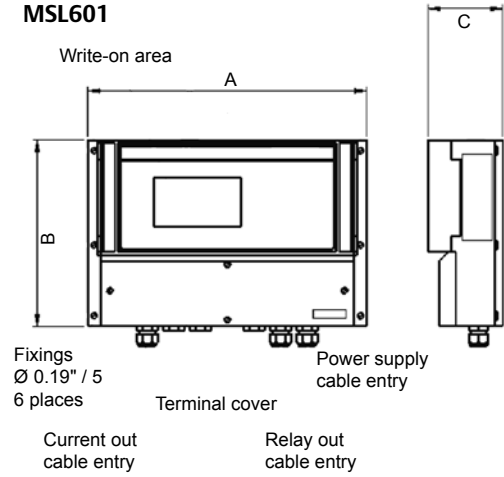
Dimensions

Controllers

MSL600

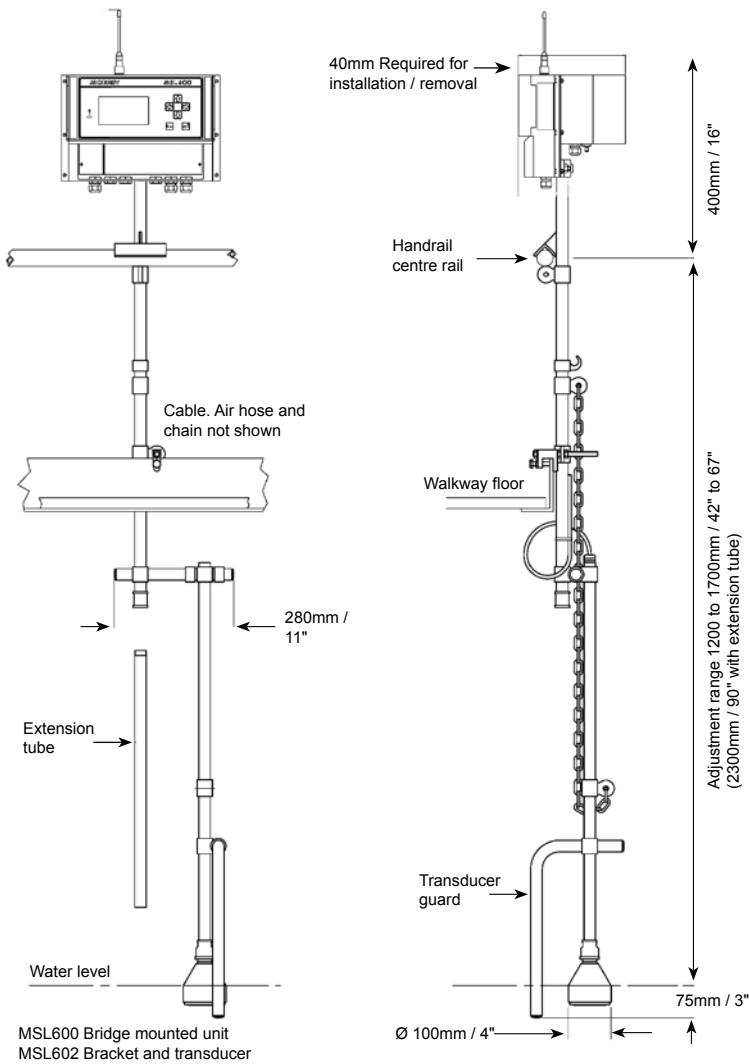


MSL601



M20 Cable glands fitted into 20mm / 0.8" entries are supplied as standard (on CE units) suitable for Ø 0.3" / 8mm cable. UL units are supplied undrilled.

Mounting assembly



Dimensions in mm and ins	MSL600 Bridge mount controller (CE)		MSL601 Remote controller (CE)	
	mm	ins	mm	ins
A	355	14	355	14
B	237	9.3	237	9.3
C	248	9.75	95	3.75
D	102	4	N/A	N/A

Specifications

Technical specification

Range	7.0m maximum (23ft maximum)
Dead band	0.3m minimum (1ft minimum)
Accuracy	+/- 35mm (+/- 1.4")
Resolution	25mm (1")
Temperature Control unit:	-20°C to +55°C (-4°F to +130°F)
Sensor:	-40°C to +65°C (-40°F to +150°F)
Power supply	110Vac or 240V ac, 50/60Hz
Enclosure rating	IP66 (Equivalent to NEMA4X)
Sensor rating	IP68 (Equivalent to NEMA 6P)
Sensor material	Ceramic face, PTFE cleaning nozzle, UPVC body
Sensor cable	Fully encapsulated with 10m / 33ft cable and air clean polyurethane hose
Outputs MSL600 & MSL601	2 programmable relays SPDT 1 fault relay SPDT 0/4-20mA isolated
Cleaning	Automatic timed air-purge via integral air compressor

Ordering information: Bridge mounting controller

MSL600	Controller with integral air clean compressor			
	Code	Model		
	Z0	No radio module fitted	115/230V ac	Bracket/wall mount
	Z1	433MHz for Europe	115/230V ac	Bracket/wall mount
	Z2	458MHZ for UK	115/230V ac	Bracket/wall mount
	Z4	472MHZ for Australia / Asia / China	115/230V ac	Bracket/wall mount
S	Other countries frequencies on request	115/230V ac	Bracket/wall mount	

MSL600 - Z1 Typical ordering information: controller

Notes:

When ordering MSL600 please state clearly the country in which the unit will operate.

If remote transmission of data is required then the MSL601 must be ordered as well (not available in USA / Canada).

Ordering information: Transducer

MSL603	MSL600 transducer with integral galvanised mild steel mounting bracket and 10m / 33ft cable/hose
MSL603/SS	MSL600 transducer with integral 316L stainless steel mounting bracket and 10m / 33ft cable/hose
MSL603/1	MSL600 transducer with 10m / 33ft cable / hose, 3/4" BSP to 1 1/4" BSP adaptor, no mounting bracket.

Notes:

The MSL603 transducer replaces the MSL602. To replace an old style MSL602 transducer order MSL603/1 as above.

Ordering information: Remote mount unit (optional)

MSL601	Controllers - Remote mount unit with integral radio link			
	Code	Model		
	Z1	433MHz for Europe	115/230V ac	Wall
	Z2	458MHZ for UK	115/230V ac	Wall
	Z4	472MHZ for Australia / Asia / China	115/230V ac	Wall
	S	Other countries frequencies on request	115/230V ac	Wall

MSL601 - Z4 Typical ordering information: remote mount unit

Notes:

When ordering MSL601/S please state clearly the country in which the unit will operate.

About us

Emerson Process Management, an Emerson business, is a leader in helping businesses automate their production, processing and distribution.

Mobrey process instrumentation has been providing industry with reliable measurement and control of liquids, gases and dry ingredients for more than 60 years.

Built on many years' applications experience in all sectors of the processing industry, from water and power to marine, petrochemicals, food and pharmaceuticals, the Mobrey brand is tried and trusted the world over. Whether it is for a routine installation or a demanding industrial environment, for high accuracy monitoring, legislative compliance, process optimisation or critical control duties, the comprehensive Mobrey range offers the ideal measurement and control solution.

Emerson brands include: PlantWeb®, Mobrey®, Rosemount®, Fisher®, Micro Motion®, DeltaV™, Ovation® and AMS™ Suite.

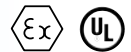
Other Mobrey products from Emerson Process Management include:-



Mobrey MSP Ultrasonic level transmitters and controllers
Level transmitters and control systems for level measurement, wetwell, sump pump control and open channel flow measurement



Mobrey MSM400 ultrasonic sludge density measurement
Sludge density measurement using attenuation of ultrasound for primary and secondary sludge and industrial slurries.



Mobrey MCU200 suspended solids monitoring and control
Sludge blanket level detection and density measurement using attenuation of ultrasound for primary and secondary sludge and industrial slurries.



Mobrey 9700 Hydrostatic level transmitters
Level measurement for arduous conditions loop powered via a Mobrey MCU900 controller.



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