

process measurement solutions

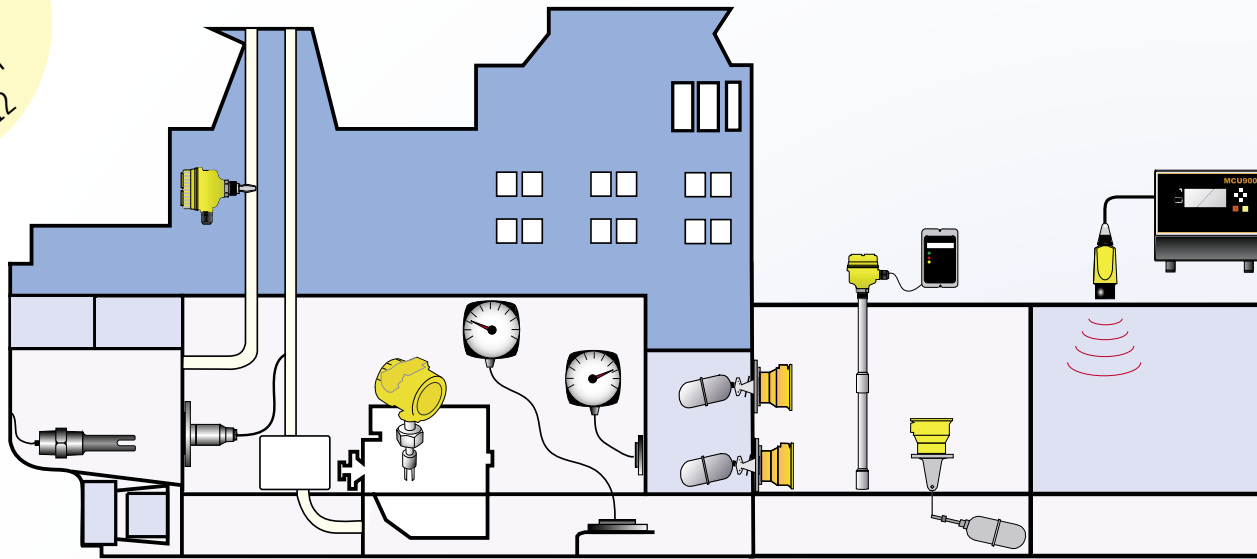


The marine industry capability catalogue



STOP PRESS
 Water ingress detection
 for bulk cargo carriers
 Marine certified systems
 to meet SOLAS
 regulation
 X11/12

Applications in th



Merchant marine

Specifically designed to meet the stringent requirements for Classification Societies, where robustness and reliability is of vital importance, Solartron Mobrey instrumentation is the ideal choice for the wide range of diverse and critical applications encountered in the aggressive environment of the marine engineer.

Application

Product

Container ships

Oil & ballast tanks
 95% and 98% High and high high level control
 Bilge level and alarms

Interface sensors for oil/water detection
 Dual Hi-sens fail-safe high level sensor

Flood detection
 Water tanks, Lube oil tanks
 HFO fuel oil blending/heating control

Hydrostatic contents gauges & transmitters
 Electromechanical float level switches
 003 integral ultrasonic gap level sensors
 Hydrostatic contents gauges & transmitters
 Viscosity transmitters

Cargo ships

Oil & ballast tanks
 Boiler controls on steam plant
 High and high high level control
 Detection of oil in boiler condensate
 Cargo and ballast level measurement
 Water ingress detection
 HFO fuel oil blending/heating control

Electromechanical float switches
 ERAB and boiler float switches
 Hi-sens & dual Hi-sens high level sensor
 433/402 interface sensors
 Hydrostatic electronic level transmitter
 Squing vibrating fork level switch
 Viscosity transmitters

Gas carriers

Control of LPG and liquid oxygen

Ultrasonic cryogenic gap sensors

Passenger ships

High and high high level control
 General tankage and ballast

Dual Hi-sens fail-safe high level sensor
 9700M hydrostatic level transmitter
 Mersey series hydrostatic contents gauges
 Electromechanical float level switches
 Ultrasonic level transmitter
 Squing vibrating level switches
 003 integral ultrasonic gap level sensors

Loading gantry water ingress
 Lavatory systems control

Hovercraft/Hydrofoils

Level measurement of fuel tanks, ballast tanks
 Level measurement water height from loading ramps

Ultrasonic fail-safe point level sensors
 MSP900 non contact ultrasonic level meter

e marine industry



Military marine

Designed to meet and withstand the testing shock, vibration and EMC requirements for approval within the defence industry, Solartron Mobrey instrumentation is the ideal solution for the wide range of diverse and critical applications encountered within a military marine environment.

Application

Product

Frigates

Level measurement: Fuel tanks, Lube oil tanks, Avcat tanks
 Fresh water tanks, SW ballast tanks
 Chilled water systems
 Bilge level
 Flood detection
 Engine oil sumps

9700M hydrostatic level transmitters
 Electromechanical float switches
 Mersey series hydrostatic contents gauges
 Pressure switches
 Hydrostatic contents gauges & transmitters
 003 integral ultrasonic gap level sensors
 Ultrasonic point level sensors

Submarines

Level measurement:
 Fuel tanks, lube oil tanks, fresh water tanks, SW ballast tanks, bilge level
 Flood detection
 Engine oil sumps
 Water ingress detection in torpedo tubes
 NSRP Primary and secondary cooling systems

8900 level sensors and transmitters
 003 integral ultrasonic gap level sensors
 302 ultrasonic gap sensors
 Ultrasonic gap sensors
 3500 and 4500 series pressure transmitters

Aircraft carriers

Level measurement: Fuel tanks, LO tanks, Avcat tanks
 Fresh water tanks, SW ballast tanks
 Chilled water systems
 Bilge level
 Flood detection
 Engine oil sumps

Pressure switches, hydrostatic contents gauges
 9700M hydrostatic electronic level transmitters
 Thames series hydrostatic contents gauge
 Electromechanical float level switches
 003 integral ultrasonic gap level sensors

Minesweepers

Level measurement in water and oil tanks
 Bilge alarm / pump control
 Overfilling prevention

9700M hydrostatic electronic level transmitters
 Thames series hydrostatic contents gauges
 003 integral ultrasonic gap level sensors



Instrumentation for the measurement of level, pressure, viscosity and flow in the marine industry

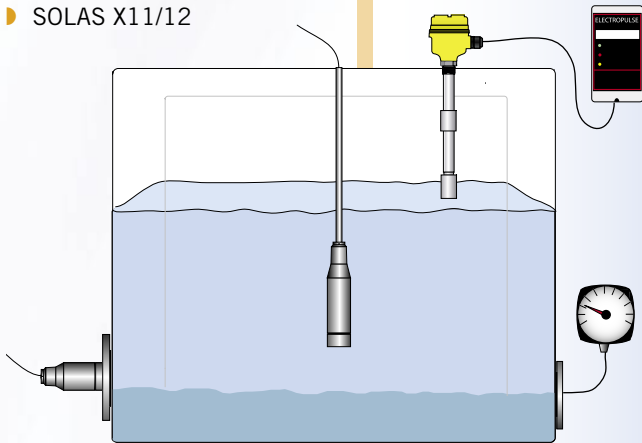
Vibrating fork level switch - Squing 2

- ▶ Threaded or flange mounting
- ▶ Extended length to 3m available
- ▶ Stainless steel wetside with ECTFE/PFA coating option for corrosive applications
- ▶ 24-264V dc or ac powered with relay or solid state output
- ▶ Intrinsically safe option EEx ia
- ▶ Explosion proof options EEx d



Water ingress detection Squing

- ▶ Potted, permanently sealed flying lead
- ▶ 316L stainless steel enclosure sealed to IP68
- ▶ Marine specification cable supplied
- ▶ Sounding pipe mounting
- ▶ SOLAS X11/12



9000M & 9700M series pressure level transmitters

The 9700 series pressure/level transmitters are ideal for arduous shipboard duties and environmentally aggressive applications, they are unaffected by difficult ullage conditions and provide stable readings under adverse conditions.

- ▶ Flush mount ceramic sensor in tough 316SS or aluminium bronze body
- ▶ 2 Wire 24V dc loop powered
- ▶ 4-20mA output proportional to level and contents
- ▶ Option of remote non interactive zero and span
- ▶ Wide range of mounting options
- ▶ Low cost installation
- ▶ Certified for use in zone 0 hazardous areas
- ▶ Submersible models



Ultrasonic gap switch 003

Self contained liquid level alarm with no moving parts for mounting in any position.

- ▶ One piece moulded PPS body
- ▶ 24V dc powered with relay or solid state output from encapsulated electronics
- ▶ 1" or 3/4" BSPT threaded mounting
- ▶ Pressure and temperature to 20b and 105°C
- ▶ Factory fitted with 3m connecting cable
- ▶ Option available with Micro-change connector



Hydrostatic contents gauges

For clear, simple, reliable and low maintenance tank contents indication.

- ▶ Accepted by major classification bodies
- ▶ Requires no external power
- ▶ Calibration to suit users requirements
- ▶ Completely automatic



Ultrasonic level transmitters and systems

MSP400 and MSP900

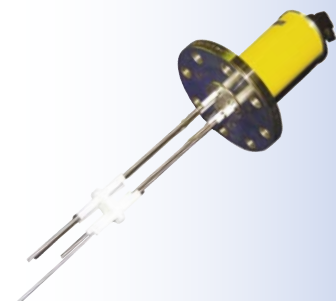
- ▶ 2 Wire 24V dc loop powered transmitter up to 12m range
- ▶ Reference accuracy +/- 3mm
- ▶ Resolution +/- 1.6mm
- ▶ Contents measurement displayed may be in any units, easily programmed by the customer
- ▶ 4-20mA output
- ▶ Control systems with 5 relay outputs:
 - Relays and current are field programmable
- ▶ Certified for use in zone 0 hazardous areas
- ▶ HART digital communications



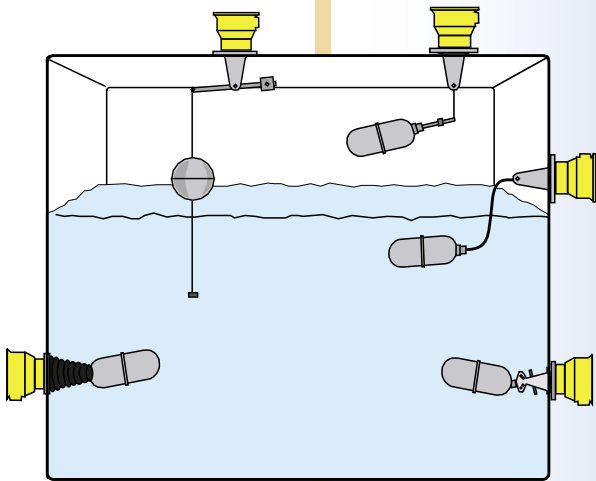
Boiler controls

For both point and continuous level applications in the boiler house

- ▶ Wide rangeability
- ▶ Configurable outputs
- ▶ Choice of float or probe controls



Instrumentation for the measurement of level, pressure, viscosity and flow in the marine industry



Electromechanical float switches

Well known throughout the industry for their longevity, reliability and quality, Mobrey level switches are used for high and low level alarms, pump protection and water condensate detection.

- ▶ Simple, rugged and reliable
- ▶ Side or top mounting
- ▶ Direct or chamber mounting
- ▶ Electrical or pneumatic switching
- ▶ Weatherproof to IP66
- ▶ Submersible IP68 models available
- ▶ Hazardous area models EEx D and EEx ia

Viscosity transmitters

Solartron Mobrey specialises in the manufacture of process viscosity measurement transmitters and analysers, including complete analyser systems.

- ▶ HFO for slow and medium speed diesels
- ▶ Tested and approved for marine use in enclosed machinery space
- ▶ Field proven
- ▶ Dynamic and Kinematic viscosity
- ▶ No moving parts, minimum maintenance

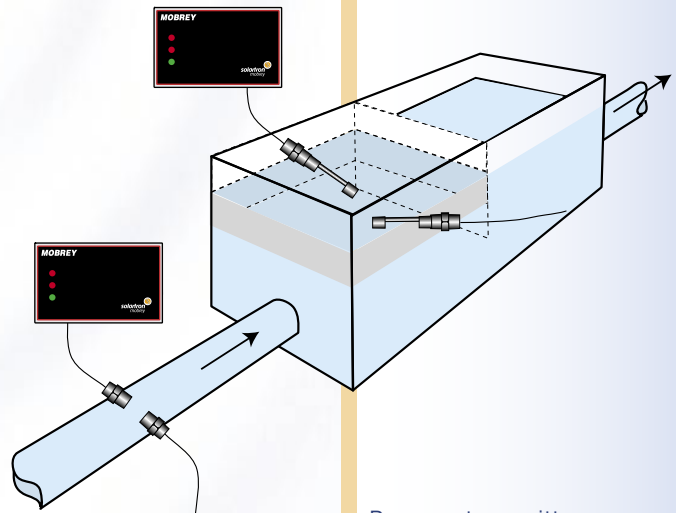


Electronic liquid level switching
A wide range of standard or custom designed ultrasonic sensors and control units is available, for use with a variety of liquids including cryogenic, oil cargo and ballast.

- ▶ Electrosensor to allow interface with the PMS (Platform management system) 8/16mA switching
- ▶ Electropulse for ultimate fail safety in critical applications
- ▶ Reliable liquid level, contents or flow measurement and control with little or no maintenance required
- ▶ Flood detection, single high or low levels
- ▶ Dual high, high/high level

Oil in water detection

- ▶ Simple installation
- ▶ Unaffected by greasing, conductivity or liquid colour/opacity
- ▶ No moving parts
- ▶ Hazardous area certified



Pressure transmitters

- ▶ Choice of housing material
- ▶ Suitable for arduous environments
- ▶ Available in a wide range of mounting configurations from simple 1/2" threaded connections to flanged or hygienic connections
- ▶ Corrosion resistant ceramic diaphragm
- ▶ Loop powered



Marine approvals

Solartron Mobrey is able to supply marine equipment that is approved by a number of approval authorities worldwide including: Germanischer Lloyd, Bureau Veritas, PTB, American Bureau of Shipping, US Coastguard, Lloyds, Det Norske Veritas, Korean Register and ATEX.

Many countries now enforce the requirement for high level fail safe equipment on board ship following IMO regulations; Solartron Mobrey marine instrumentation is designed to meet these regulations.



Solartron Mobrey is one of the world's largest suppliers of instrumentation, serving the marine market worldwide through a network of distributors and agents offering an after sales service and customer support network worldwide.

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