

Magnetic Float Level Switch

OPERATING PRINCIPLE :

The basic operation principle for the magnetic float switch action results from a change in liquid level. Float vertical movement tracking the liquid surface is the basis of the interaction between the built-in magnets within the float and reed switches integrated inside guide probe.

DESCRIPTION :

Magnetic float level switches are suitable for level detection, level switching and one or multipoint controlling tasks.

A polystyrene float with permanent magnets moves reliably along with liquid level on uPVC guide tube. Within the guide tube a couple of reed contacts were fitted (inert gas contact), which is energized, through the non-magnetic walls of the float and guide tube, by the approach of the float magnets. By using a magnet and volt-free reed contacts the switching operation in non-physical-contact is free from wear and needs no power supply. This technique grants durable robust (defect-free as well as maintenance-free product) that has no vulnerable electro-mechanical parts as per traditional mechanical float switches. The contacts are potential-free. Magnetic float switches are also available with multiple switch points. The switch functions always refer to a rising liquid level (normally open, normally close).

The float switch is simple to mount and maintenance-free, so the costs of mounting, commissioning and operation are low. This device is designed to withstand harsh operating conditions and can offer long service life complying with GCC regulations.



APPLICATIONS :

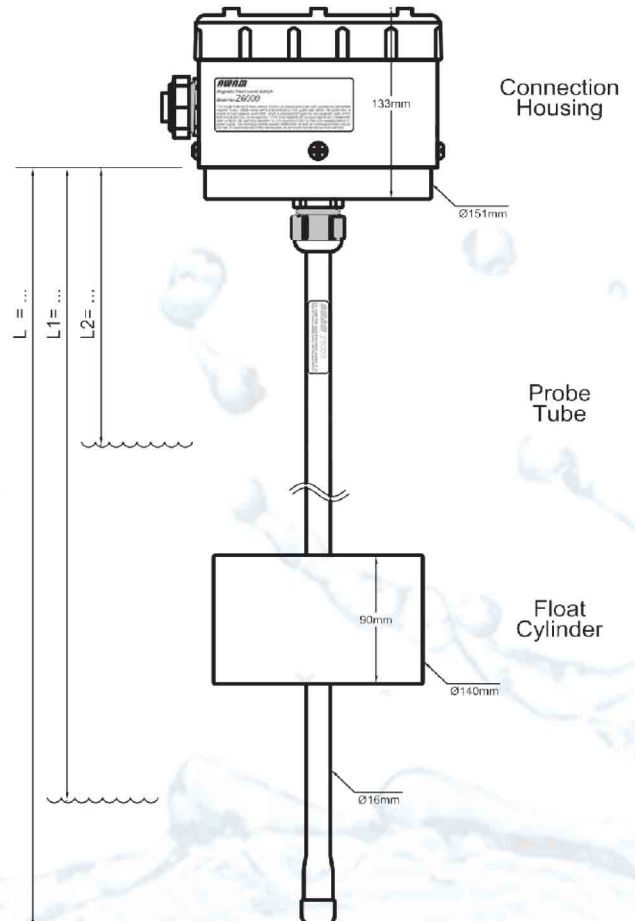
- * Ideal for on-off liquid level control.
- * Multipoint level switching for controlling pumps, valves, control for distinct filling levels.
- * Level measurement for domestic water tanks and reservoirs.
- * Process water and drinking water treatment, food and beverage industry.
- * Controlling and monitoring water level within potable water tanks mounted at the roof of residential or commercial buildings.
- * Water leakage detection - mini version of AWAM.

MAIN PARTS :

- 1* White PVC connection housing containing the connection terminals, also performs as a simple and effective suspension technique for the device at almost all types of tanks. Cable terminating to outside the device is done via UL3/4" watertight steel glanding.
- 2* uPVC probe tube comprising couple of reed switches complete with wiring up to connection end (housing). Other end of the tube is hermitically sealed. Number of installed reed switches and connection (wiring) details are subject to client desires.
- 3* Polystyrene float cylinder enameled with WF-AC-600 elastomeric acrylic coating to grant polystyrene float integrity. The float cylinder center axe is equipped with engraved short PVC pipe incorporating four permanent magnets for reliable operation. Epoxy paint also available in case of waste water applications

SPECIAL FEATURES :

- * Easy mounting (direct plug into tank top).
- * Large range of application due to the simple, proven functional principle.
- * Suitable for harsh operating conditions, robust construction for long service life.
- * Process connection (housing), guide tube and float are made of plastic and elastomeric acrylic with zero water permeability – not like conventional electrical floats were water penetrates the device at long run.
- * Safe termination of field wiring. Thanks to the PVC housing, its terminal blocks and glanding.
- * Tight (interference-fit) mounting at tank top avoiding water pollution and dust.
- * Level switching function without auxiliary power.
- * Universal signal processing: can be connected to regular level control panel, contact protection relays or direct connection to PLC for control or for monitoring.
- * Works independently of foaming, conductivity, dielectricity, temperature, condensation, bubble formation, vibrations, electromagnetic interferences and heat variations.
- * Single and multiple switch models, multiple functionality in a single instrument – up to 8 potential free contacts, based on customer demand.
- * Exact repeatability of the switch points.
- * Instantaneous open close for pump or valve. No resonance noise (loud sounds developed usually in steel pipes with mechanical float in side tank) due to gradual water cut off caused by mechanical float valve closing which is proportional to water level progress!
- * No cable complications (tangled cables) as per conventional electrical floats. Thanks to the distinguished suspension technique used in AWAM.
- * Local product, guaranteed and with competitive price.



MODEL OVERVIEW TABLE :

Float switch model	Description	Material	Approvals	Temperature Range	Mounted @	Tank Capacity
AWAM Z2000	Magnetic float switch, standard plastic version	PVC	Private Projects, KSA, UAE & Jordan	0 ... +50° C	Steel Tank	2. m ³
AWAM Z4000	Magnetic float switch, standard plastic version	PVC	General Directorate of Military Works, KSA	0 ... +50° C	Polyethylene Tank	4. m ³
AWAM Z5000	Magnetic float switch, standard plastic version	PVC	General Directorate of Military Works, KSA	0 ... +50° C	Polyethylene Tank	5. m ³
AWAM Z6000	Magnetic float switch, standard plastic version	PVC	General Directorate of Military Works, KSA	0 ... +50° C	Polyethylene Tank	6. m ³
AWAM Z22000	Magnetic float switch, standard plastic version	PVC	General Directorate of Military Works, KSA	0 ... +50° C	Glass Reinforced Polyester (GRP) Bulk Tank	22. m ³
AWAM RC500	Magnetic float switch, standard plastic version	PVC	Ministry of Water & Electricity, KSA	0 ... +50° C	Reinforced Concrete Reservoir	600. m ³

TECHNICAL DATA :

	Z-type	RC-type
Insertion length	0.18m ... 3m	0.25 ... 8m
Material of wetted parts	uPVC guide pipe & polystyrene float coated with elastomeric acrylic.	uPVC guide pipe & polystyrene float coated with elastomeric acrylic.
Medium density	Around 1000kg/m ³	Around 1000kg/m ³
Medium temperature	0° C ... 50° C	0° C ... 50° C
Ambient temperature	-5° C ... 65° C	-5° C ... 65° C
Output signals	2 ... 5 voltage free impulse reed-switches, two terminals per each contact (NO)	2 ... 8 voltage free impulse reed-switches, one connection point per each contact with one common for all (NO)
Switching capacity*	12VA 230Vac/dc 1A per contact	12VA 230Vac/dc 1A per contact
Switching point	Based on customer demand. (see order code table).	Based on customer demands. (see order code table).
Switching differential	5mm	5mm
Distance between switching points	Minimum 100mm	Minimum 100mm
Electrical connection	UL3/4" Liquid-tight steel gland	UL3/4" Liquid-tight steel gland
Process connection	Direct mounting (see INSTALLATION)	According to customer demands
Ingress protection	IP54	IP54
Electrical protection	Class II	Class II
Mounting position	Plumb. ±20 Degrees	Plumb. ±10 Degrees

* Depending on load type, reed contacts should be protected against any voltage or current spikes that might present.

We would be more than happy to serve you. Should you have any technical enquiry, please feel free to contact 00966 564404530

INSTALLATION :

AWAM can be installed at domestic water tanks, fire -fighting water tanks, irrigation water tanks or septic tanks ... etc. What so ever was the material of the tank or its formation / shape, AWAM can be installed easily and in a professional way, not like conventional float switches humble hookup! Meanwhile, one AWAM device can produce several switching points / levels.

AWAM level switch is equipped with $\varnothing 140\text{mm}$ cylindrical float which can be inserted into the tank through $\varnothing 152\text{mm}$ plain opening (process connection). If accessing the interior of the tank is possible, $\varnothing 22\text{mm}$ opening is enough to install the float switch (float is fit to the probe tube then inserted from inside the tank, probe connection end shall go up from $\varnothing 22\text{mm}$ opening at tank top, were housing is fit up and terminated). Thanks to the flexible design of AWAM consisting of three main parts that can be dismantled and reassembled very easily in no time.

Other installation techniques using special fittings tailored for this purpose are shown below in self-explanatory true photographs. As water level monitoring and control system, AWAM can be connected to control panel (in its simplest way of connection), alarm annunciator panel (in case there are no BMS), building management system, PLC control system or SCADA system, and in all cases level can be monitored and controlled in a professional reliable manner.



Direct mounting at flat head polyethylene tank.



Direct mounting at steel water tank.



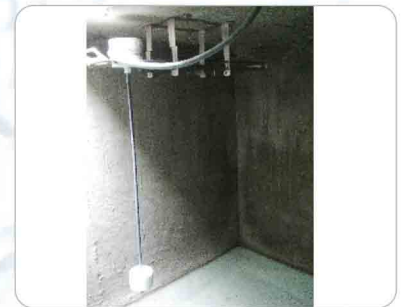
Direct mounting at concrete ground reservoir with $\varnothing 152\text{mm}$ PVC sleeve.



Mounting at horizontal polyethylene water tank using tripod hook.



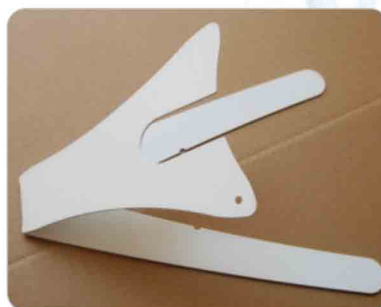
Mounting at vertical polyethylene water tank using tripod hook.



Mounting inside underground tank using stainless steel drawer.



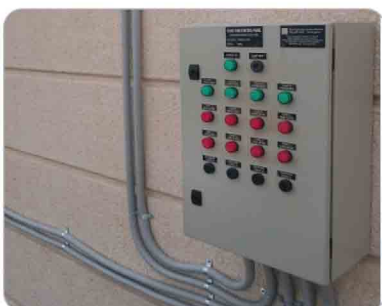
Stainless steel drawer for invert level installations within tanks which have car-parking or paved tops.



Steel tripod hook for mounting at curved surfaces.



Mounting inside septic tank access using stainless steel right-angle-bracket.



Water Level Control Panel.



Alarm Annunciator Panel.



AWAM main parts, Connection Head, Probe Tube and Float Cylinder.