



TDSR23024AC

Tank Level Control Panel

Installation Manual

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Description Of Operation

This system controls the filling of a tank between 2 level sensors, typically a header tank or break tank from a pump, solenoid or motorised valve without the need to install a float valve or ball cock, and so provides much greater efficiency and faster fill times. Reliability and accuracy are both increased in comparison to a float switch system, and an additional level of security against failure is provided by a second sensor which will shut down the system in the event of a potential overflow.

Pumps can be operated at full flow and benefit from increased cooling, reduced run-time, and reduced electricity consumption.

Pump or valve activation occurs when the water level drops to the lower sensor, and continues until the upper sensor has been reached. An additional alarm sensor installed above the upper sensor acts as a back-up in the event of sensor failure, shutting down the system and triggering an alarm.

Installation

Safety Precautions

Mains Voltage – There are exposed electrical conductors inside this appliance. This appliance must be installed and serviced by a competent electrical technician to the current requirements of BS7671 and IEEE recommendations. Before servicing this appliance, normal safe isolation procedures should be implemented.

Do not touch any connection terminals while energised.

Do not attempt to service this item when wet, or in a wet or high humidity environment.

If the housing of the control panel becomes damaged, you must shut down and securely isolate this appliance immediately.

Included Components

TDSR23024CA Panel
3 x Reed Switch Level Sensors
Installation & Operation Manual

Layout

The control panel should normally be mounted indoors, it is not fully weather resistant but can also be installed in sheltered outdoor locations (barns, covered areas, etc). It is usually installed near the header tank or break tank.

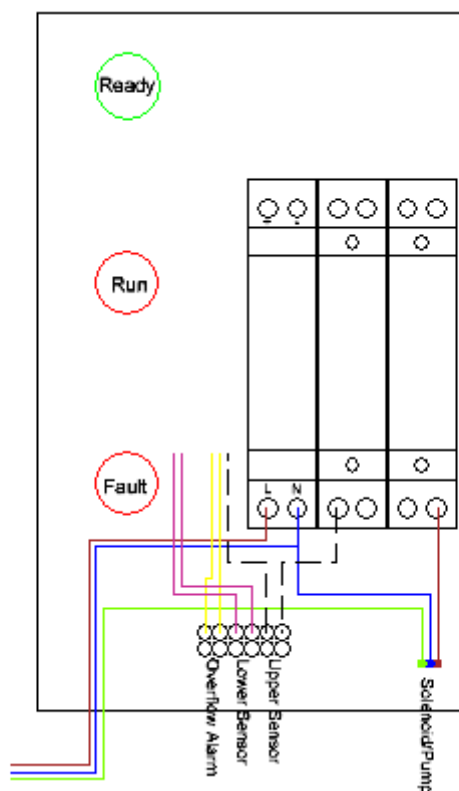
Voltage drop will affect the cable size needed to take power to any pump used. The more current is drawn the greater the effect over distance. Over very long runs, you may find it more economical to install contactors near to the pumps, allowing you to control the pumps with a sensible cable size. It is strongly recommended that you calculate voltage drop for cable runs which exceed the length of cable supplied with the pump. Failure to do so may result in cable overheating, conductor migration, and risk of fire.

Suitable circuit protection must be installed and should include as a minimum a suitable earth, overcurrent protection, and residual current protection at 30mA, ideally on it's own circuit, but always in accordance with BS7671 and applicable regulations.

Control Panel Mounting

Open the cover of the control panel. There are 4 recesses, one on each corner of the panel. Drill through at these locations and attach to the wall or a suitable support, taking care not to damage cabling inside the panel. Fixings are not included and should be selected to suit the material to which the panel will be mounted.

Connections



The 230vac mains supply cable is pre-fitted.

Level sensors or float switches are connected to a 12way terminal block. Colours are as follows from left to right.

- Yellow – Alarm/Overflow Sensor (switch output off and illuminate Fault Light)
- Violet – Lower Level Sensor (switch output on)
- White – Upper Level Sensor (Switch output off)

The output cable to the solenoid valve or pump is 230vac and is suitable for direct connection of devices up to 10A. This connection is made via 3 grey connector blocks near the base of the unit connecting to Brown (live), Blue (neutral) and Green/Yellow (earth).

Level Sensor Installation

Level sensors used may be any device with a non-voltage switched contact, this includes float switches, reed switches, and electronic conductivity, fork or paddle sensors with a relay output. A typical sensor for small water tank use would be a horizontal reed switch.

The lower and mid level sensors must produce a closed circuit when no water is present and open circuit when immersed, for a reed switch this would be with the paddle flapping upwards when immersed and coming to rest horizontally otherwise. The uppermost sensor should be the reverse of this to produce an open circuit when no water is present, for a reed switch the paddle will be

hanging down when empty and sitting horizontally when immersed.

The Lower Level Sensor should be fitted in the header tank or break tank at the level at which you want the device to activate. If there is any additional fill system such as a mains water float valve in a rainwater system, you would set the sensor height accordingly depending on which fill system you want to activate first.

The Upper Level Sensor should be fitted at the point where you want the fill cycle to end (the highest desired water level), below the level of the Alarm Sensor and emergency overflow.

The uppermost sensor is the Alarm Sensor and acts as a fail-safe in the event of a potential overflow due to a failure of a sensor beneath it. It should be fitted below the level at which the tank would overflow.

If the display panel is not fitted in an easily observed location and the tank overflow pipe discharges to a safe but easily visible area, you may wish to install the overflow sensor at the same height as this pipe to allow the overflow to be seen in the event of a sensor failure. The Alarm Sensor will prevent the tank from being overfilled beyond this level during this occurrence.

Note – It is highly recommended that all header tanks or break tanks are fitted with an adequately sized overflow pipe.

Specifications

Dimensions	180mm x 110mm x 90mm
Enclosure Material	Polystyrene
Ingress Protection	IP66
Electrical Protection	Class 2
Voltage	230VAC 1~
Load	10A