3P TC Series Tank Controllers

Electronic Water Level Control

- **Automatic Water Level Control**
- **Accurate Water Level Display**
- **Four Dual Function Outputs**
- **High/Low Level Alarms**
- **Works with almost all pumps, valves, etc**
- **Designed, Built, Programmed and Assembled in the UK**

TC Control Unit

Overview

The 3P TC Series Tank Controller maintains and monitors the level of water in a storage tank. A precise level sensing probe detects the exact height of water present in the tank. The Controller then uses any of four mains voltage outputs which can be connected to pumps, solenoids, motorised valves or any other type of filling or draining device to maintain the level between defined limits.

Each pump or valve connected to the Controller is assigned high and low switch levels, and is set as either a drain or fill function. A pump supplying water to the tank would be a fill device, one in the tank itself would be an drain device.

In a drainage application, 2 pumps could be set in a chamber, assigned as drain type devices and set to start at different levels to produce a duty assist/standby pump chamber.

For a water storage application, a pump or solenoid could be set as a fill device, supplying the tank with water. A second output could then be used to manage an automatic pump supplying water from the tank with dry run protection and both devices operating from the same sensor.

To provide more complex functions, each output can be linked to any of 5 switch inputs, which must be closed for the output to operate. This is in addition to the minimum and maximum levels that the output must operate within and is useful in cases where water is to be transferred from point to point. Filling a tanker for example could be conditional on sufficient water in the main supply tank, and also depend on a shut-off or level switch on the tanker or filling hose. Alternatively a pumped stormwater attenuation system could be linked to a rain sensor to stop emptying the tank when rainfall is detected.

Level sensing is achieved via a single pressure sensor installed on the base of the tank. This reads the actual water depth and the Control Panel then shows the exact level and operates accordingly, thereby removing the reliability issues associated with float switch based systems.

The use of a single level sensor also allows for the stop and start levels to be adjusted from the control panel. There is no need to enter the tank to fit and adjust float switches, and no uncertainty as to whether a pump is operating at the correct water levels. The number of cables required for level control is also reduced to 1 per tank.

Multiple devices can be operated within the same tank, or a second level sensor can be added, giving a single panel control over 2 tanks at the same time. Both tanks could be part of a connected system, totally separate systems, or separate systems sharing the same switch inputs. Finally both sensors could be used within the same tank to provide duplication of sensors and/or pumps/valves as a safeguard against component failure.

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Electronic Level Control Systems

Available with 2, 3 or 4 outputs, each output can be configured as a Drain or a Fill function depending on whether the attached device takes water to or from the tank when powered.

High and low level alarms are also set from the control panel, and a switched BMS output (volt free contact) is provided, which can be also used to activate sirens/strobes.

3 Versions of the T series are available

TC320 - 2 outputs
TC330 - 3 outputs
TC340 - 4 outputs

All TC Series systems have intuitive menu driven settings. There are no hidden menus, and almost everything is adjustable, level probes are automatically detected when plugged in, and no level calibration is required.

3P TC Series Tank Controllers also incorporate Advanced Fault Tracking. Fault codes are stored in memory until you choose to erase them, allowing easy identification of intermittent and historical faults.

Clever design of the circuit board makes the TC Series the most robust unit on the market today, with overvoltage and brownout protection, immediate recovery from power

failures with no loss of setting and auto reboot, individually fused outputs, oversized power supply to electronics, removable MCU chip (software) for easy upgrades. Modular connector design and tolerant software allows pumps and sensors to be 'hot-swapped' without switching off the controller or remaining pump.

Designed, programmed, built and assembled in the UK. With full UK based technical support , rapid spares availability, and spare parts supply from UK stocks. Full repair/recon service to board level.

Features

- *Modular 'hot swap' of pumps and solenoids*
- *No need for tank level calibration*
- *Multiple pump model support at 230Vac 50Hz or any supply voltage/phase via contactors/overloads*
- *BMS Switched output*
- *Optional BMS serial output*
- *Advanced Fault Tracking*
- *Fault Warning LED*
- *Auto failover to redundant spare pump/valve can be set using spare output*
- *Swappable MCU chip (software)*
- *High and Low Level alarms, linked to BMS output.*
- *Overvoltage protection*
- *Brownout protection*
- *Watchdog timer*
- *Fused Outputs*

Adjustable Settings

- *High/Low level settings for each output*
- *Link any output to any input switch*
- *Link and output to either level probe*
- *Switch inputs can be shared between outputs*
- *High Level/Low Level alarms*
- *Fault code display*
- *Fault code erase*
- *Input test diagnostic screen*
- *Output test diagnostic screen*
- *Manual Stop - with BMS activation*
- *Restore Factory Default Settings*

3P TC Series Tank Controllers

Electronic Level Control Systems

OEM Solutions

Usually supplied either as a panel and level sensor only, but can be offered to OEM customers as a package, comprising of the panel, pumps, cables, solenoids, hose kits, etc. We work with our customers to provide specific product bundles, with panel and software branded to your requirements.

We provide full training, design and technical support, and will customise the product and accessories to your requirements, and full UK based support and spare parts availability.

Benefits

Excellent configurability whilst retaining an intuitive menu driven user interface.

Made in Britain. Designed, built and programmed entirely in the UK by 3P Technik.

Full UK support , with customisations to hardware and software available with very short lead times.

Modular design allows extremely rapid swap-out of parts. Including hot-swap of connected accessories and sensors (no power-off).

Very low lead times. All spare parts stocked by us in the UK for immediate dispatch. We don’t follow the ‘buy to order’ business model of continental manufacturers whose lead times are often unsuitable for UK clients.

We can supply not only the control equipment, but also pumps, filtration and all tank fittings.

Accessories

RC3P Series 3 Phase 230v/400v IP65 Rated Connection Kits with contactors, thermal overload protection and optional over/under voltage detection, phase loss detection,

IP65 Rated Isolation Switches

IP68 Rated Cable joints

Vented sensor cables (multiple types)

IP68 Rated Vented cable joints

IP68 rated in-line plugs/sockets

A wide range of transfer pumps, pressurisation/booster pumps, and associated fittings

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Electronic Level Control Systems

Technical Specifications

Control Unit

Width	240mm
Height	190mm
Depth	110mm
Material	ABS
Weight (control panel without cables)	1190g
Display	LCD 4 x 20 Monochrome
Backlight	Green
Keypad	Membrane
BMS	Volt-free contact
BMS (optional)	RS-232 Serial
Supply Voltage	$230V_{AC}$
Power Consumption	Max 7W
Operating Temp Range	0 - 40ºC
Protection Class	Up to IP65

Switch Inputs

Type	Solid state 15vdc with conductivity sensing
Suitable Switch Types	Any contact switch (including low current such as reed and thermal switches), conductivity probes, Volt-free contacts (from alarm systems, etc)

Tank Level Sensor

Measurement Range	0 - 0.6 bar
Length	20m
Cable Type	0.5mm 2 core flex with external vent tube Or Multicore shielded signal cable with internal or external vent tube
Input	8 - 30 V_{DC}
Output	4 - 20 mA
Protection Class	IP68

Switched Outputs

Supply Voltage	$230V_{AC}$
Current	10A