

T4000 INSTRUCTION & INSTALLATION MANUAL



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Introduction

The Purpose of this document is to outline the installation and operational procedures and the operation of the T4000 Alarm Monitor and Controller series, the different variants are listed below.

- T4000 - 24PR Pump Controller unit, 24vdc powered.
- T4000 - 24AL 4 Channel Alarm unit, 24vdc powered.
- T4000 – 240PR Pump Controller unit 240vac powered
- T4000 – 240AL 4 Channel Alarm unit, 240vac powered.
- T4000-12ALSP 4 Channel Alarm, with Solar power and battery.

Safety Warnings

To avoid injury please read this manual carefully before installation. Failure to do so could result in injury or failure of the equipment, this will invalidate any warranties given.



Warning

Installation

Mains Voltage – There are exposed electrical conductors inside this appliance of 240vac and 24vdc. This appliance must be installed and serviced by a competent electrical technician to the current requirements of BS761 and IEEE recommendations. Before servicing this appliance, normal safe isolation procedures should be implemented.

It is recommended that suitable circuit protection is installed and should include as a minimum a suitable earth, overcurrent protection, and a residual current protection at 30mA, ideally on its own circuit, but always in accordance with BS7671 and applicable regulations.

Do not touch any connection terminals while energised.

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

If the housing of the T4000 becomes damaged, you must shut down and securely isolate this appliance immediately.

Included Components

T4000 Control Unit

Installation & Operation Manual

Required Components Not Included

Up to 4 x Float Switches or GXX Series Rigid Float Switches

OLE Gauge with Relays

Mounting Holes

There are 4 mounting holes in the base of the unit, these are located behind the front panel screws

See **Figure 1** the distance between mounting holes is 110mm wide X 160mm high.

PSU Wiring

The T4000 has the option of coming with a **240vac to 24vdc PSU** as shown below in **Figure 1**, if a PSU is supplied then 240vac should be wired into the LNE terminals, the output of the PSU is 24vdc and the **+ -** terminals should be wired to the **+ -** terminals of the T4000 as shown in **Figure 2**.

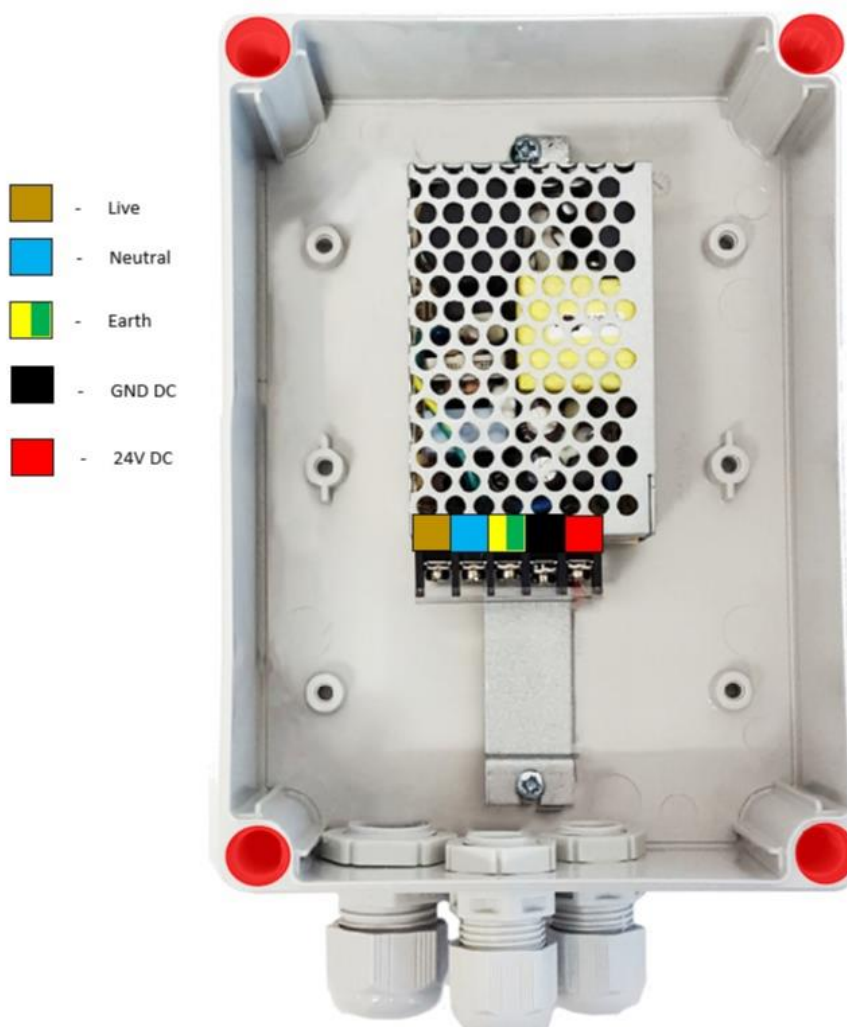


Figure 1

Product Description

The T4000 Alarm / Control unit has 4 digital inputs, this alarm monitor can be operated as a standalone unit, it can also be setup as a Day Tank Pump Controller or sump Controller.

Applications Include

- Up to 4 x Tank Level Switches: LL, L, H, HH
- 3 x Tank Level and 1 x Bund: Bund, LL, L, H
- 2 x Level, 1 x Bund, 1 x Water: Bund, Water, L, H
- Secondary High - Level Alarm when combined with T5020 Automatic Pump Control with fail safe.
- Day Tank Level control

Medium Controller can be used in

The T4000 can be used in applications using **Diesel, Biodiesel, Gas Oil and AdBlue.**

Technical Features

T4000 – 240PR/240AL

Enclosure Size	125 x 175 x 75
Cable Gland Size	2 x m16, 1 x m20
Operating Temperature	0-60°C
I.P. protection degree	IP 65
Nominal Voltage	240Vac
Frequency	50/60Hz
Relay Max Contact Voltage AC	240vac
Relay Max Contact Voltage DC	24vdc
Relay Max Current	10Amps
Nett Weight	0.6kg

T4000 - 24PR/24AL

Enclosure Size	125 x 175 x 75
Cable Gland Size	2 x m16, 1 x m20
Operating Temperature	0-60°C
I.P. protection degree	IP 65
Nominal Voltage	24vdc
Relay Max Contact Voltage AC	240vac
Relay Max Contact Voltage DC	24dc
Relay Max Current	10Amps
Nett Weight	0.6kg

T4000-12ALS

Enclosure Size	125 x 175 x 75
Cable Gland Size	2 x m16, 1 x m20
Operating Temperature	0-60°C
I.P. protection degree	IP 65
Solar Panel	Nominal Voltage (VMP)17.5V, Nominal Current 0.58A
Solar Panel	Nominal Power 10W
Nominal Voltage	12vdc
Relay Max Contact Voltage AC	NO=10Amps 250vac / NC=6amps 250vac
Relay Max Current	10Amps
Nett Weight	2.9kg

Description of Operation

- The T4000 Display panel provides a highly visible and reliable level indication.
- The illumination of one or more lights provide an indication of the power status.
- When lights are Green there is No Alarm.
- When an alarm condition occurs, the LED will Flash RED.
- When LED's Flash RED and the Alarm/Mute button is pressed the Lights will change to a fixed RED.
- When the T4000 is out of Alarm the LED will revert to Green.
- Multiple Alarms can be acknowledged at any time.
- During Pump On mode, LED's are Orange.
- The BMS volt free output changes when any of the alarms are flashing Red or a solid Red.
- The P and A jumper can be set so the T4000 can be used as a Pump controller or as an Alarm.
- When in Pump control mode the Relay outputs 2 and 3 are not operational.
- When input 4 is in Pump control this also shuts down the **Pump Circuit Fail Safe**.

Connection Settings

- Float switches provided by OLE are Normally Closed (NC) When in the **Down** position.
- The T4000 inputs can be switched from NC to NO as required using the 2 jumpers on each circuit. **See Wiring diagram Figure 2.**
- The 01 jumper can be removed to disable the alarm circuit. (No LED)
- The P and A jumper are to select if the system is to be used as a Pump controller or as an Alarm.
- H+ H- is for an Audible Alarm that will activate when a Flashing RED LED condition is present. (This is the supply voltage 24vdc)
-

Inputs - Each of the 4 inputs can be set to

- Not Used
- Normally Open (NO)
- Normally Closed (NC)

It is recommended NC is used as this provides a Fail-Safe input.

Siren and BMS Outputs

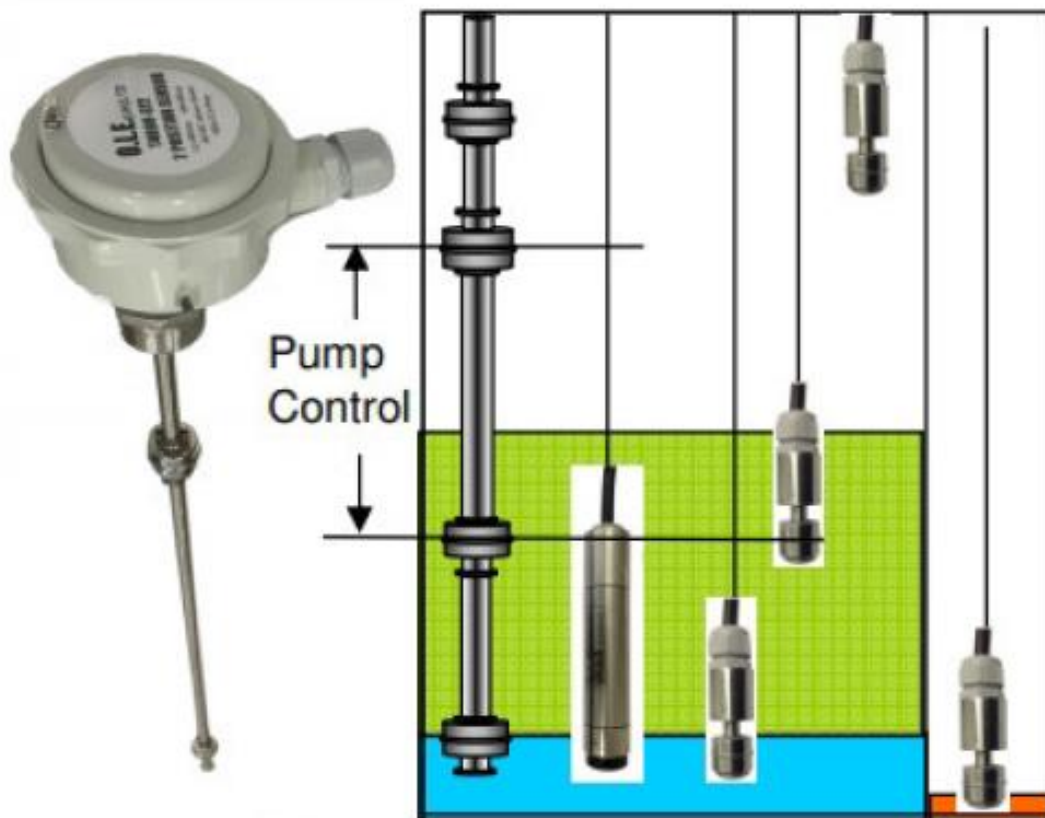
- Local Alarm / Siren connections Sounds when the LED Flashes and Stops sounding when the alarm is acknowledged.
- BMS Remote connection is an output volt free passive contact that is normally closed, this connection 'OPENS 'when an alarm is detected and the associated LED flashes, The contact remains open even after the alarm has been acknowledged and will only close when the LED's are Green and in the safe operation mode. This ensures BMS systems and similar control monitors can see when they are made safe and not simply acknowledged locally.

Alarm Mute

- The T4000 has the capability of muting the audible alarm without deactivating The remote output by simply pushing the ALARM/MUTE button, the sounder will be Muted until the button is depressed.

Test Mode

- The T4000 has the capability of checking the audible alarm without activating The remote output by simply pushing the ALARM/TEST button, the sounder will Alarm as long until the test button is depressed.



The T4000 can easily be configured to make it a pump controller by changing the position of the jumpers as shown in **Figure 2**.

- When control input 2 is triggered, this latches the pump control relay on.
- When control input 3 is triggered, this unlatches the pump control relay.
- As a failsafe if input 4 is triggered the audible alarm will sound and the pump control relay will open circuit.

WIRING DIAGRAM

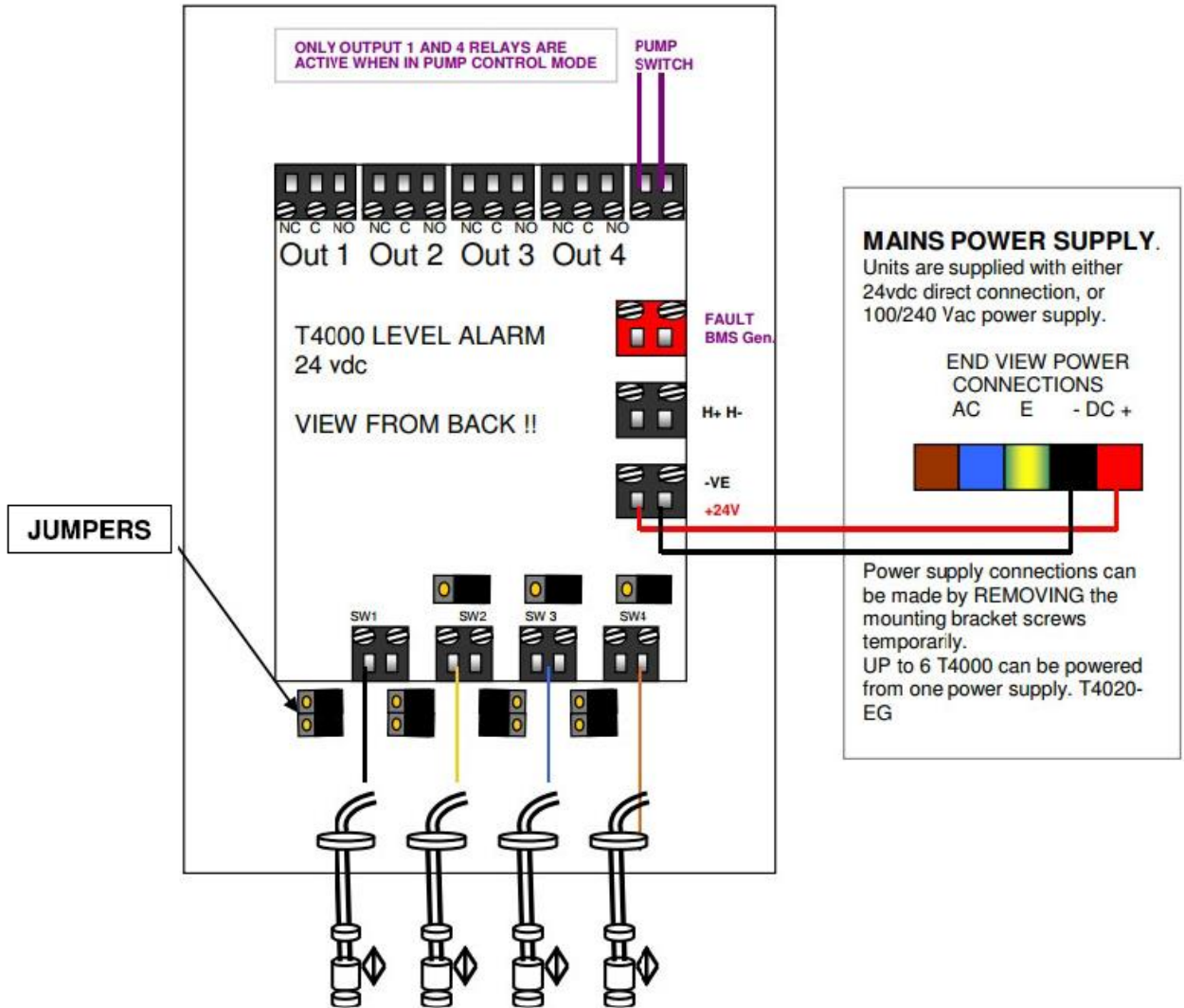


Figure 2

T4000 -T5020 Pump controller

You can configure a T5020 with a R5 relay board in conjunction with a T4000 as shown in **Figure 3** to provide a visual indication of the tank level in Litres, when used in this mode no float switches are required.

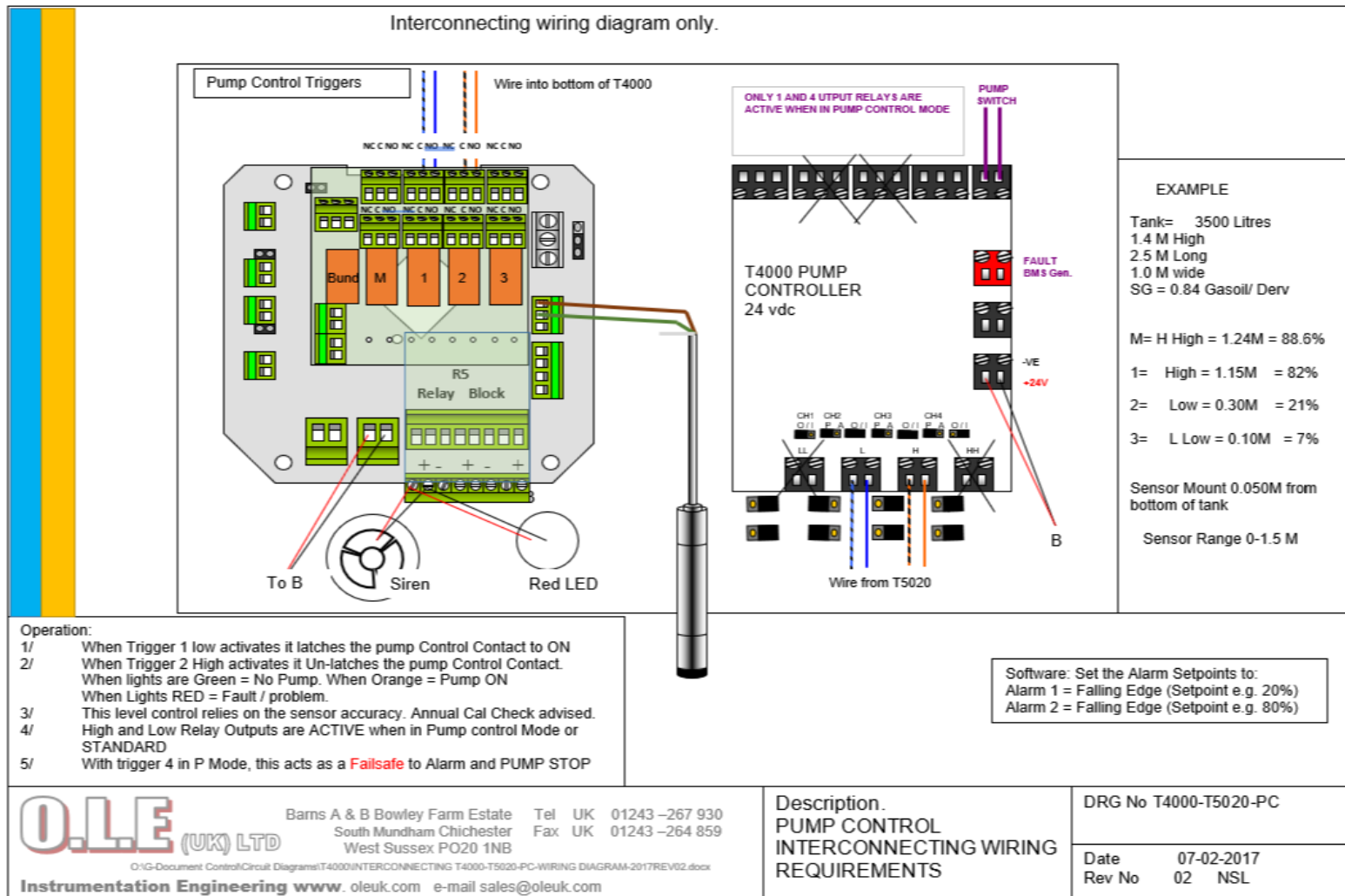
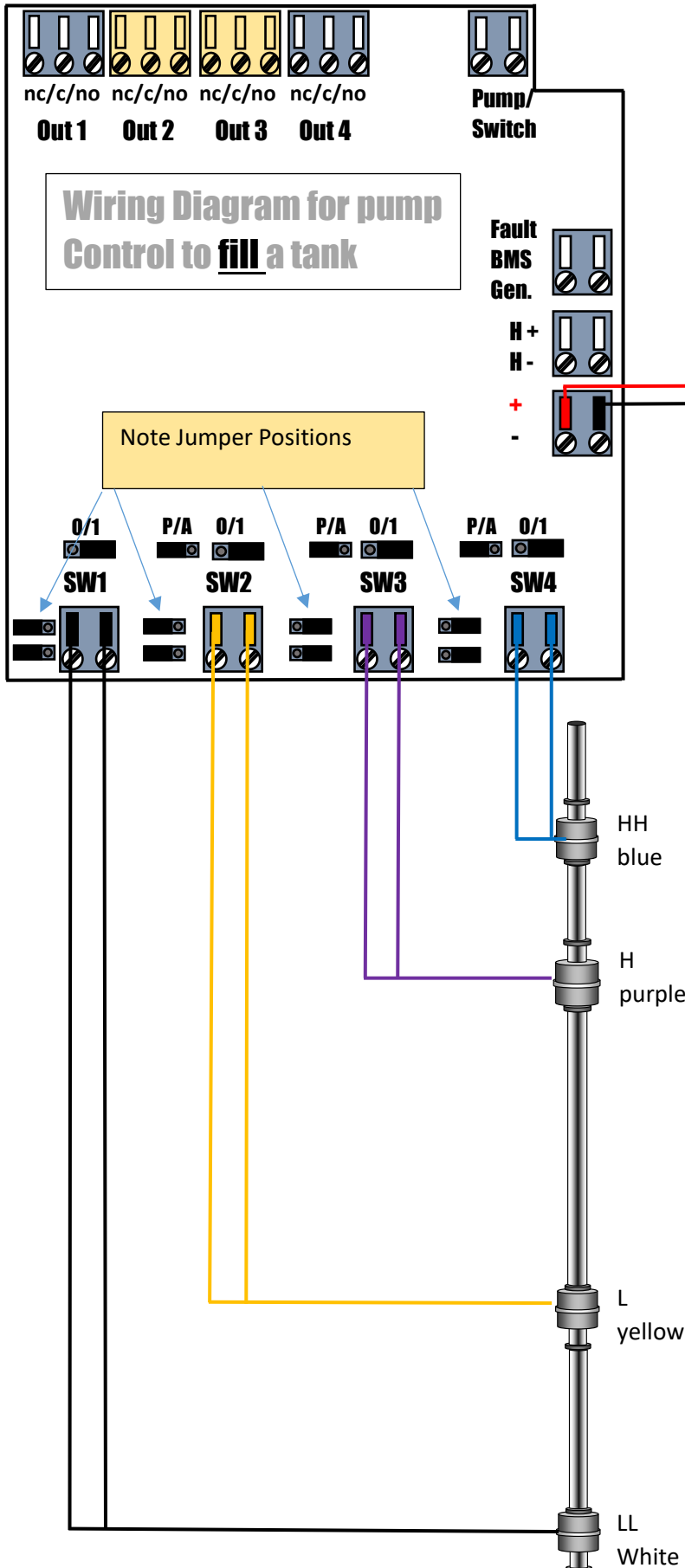


Figure 3

T4000 Wiring Diagram Setting for Day Tank Control



Wiring Diagram for pump Control to fill a tank

Note Jumper Positions

Power Supply

Units are supplied with either 24vdc direct connection, or 100/240 Vac power supply.

Power supply connection can be made by removing the removing the mounting bracket screws temporarily



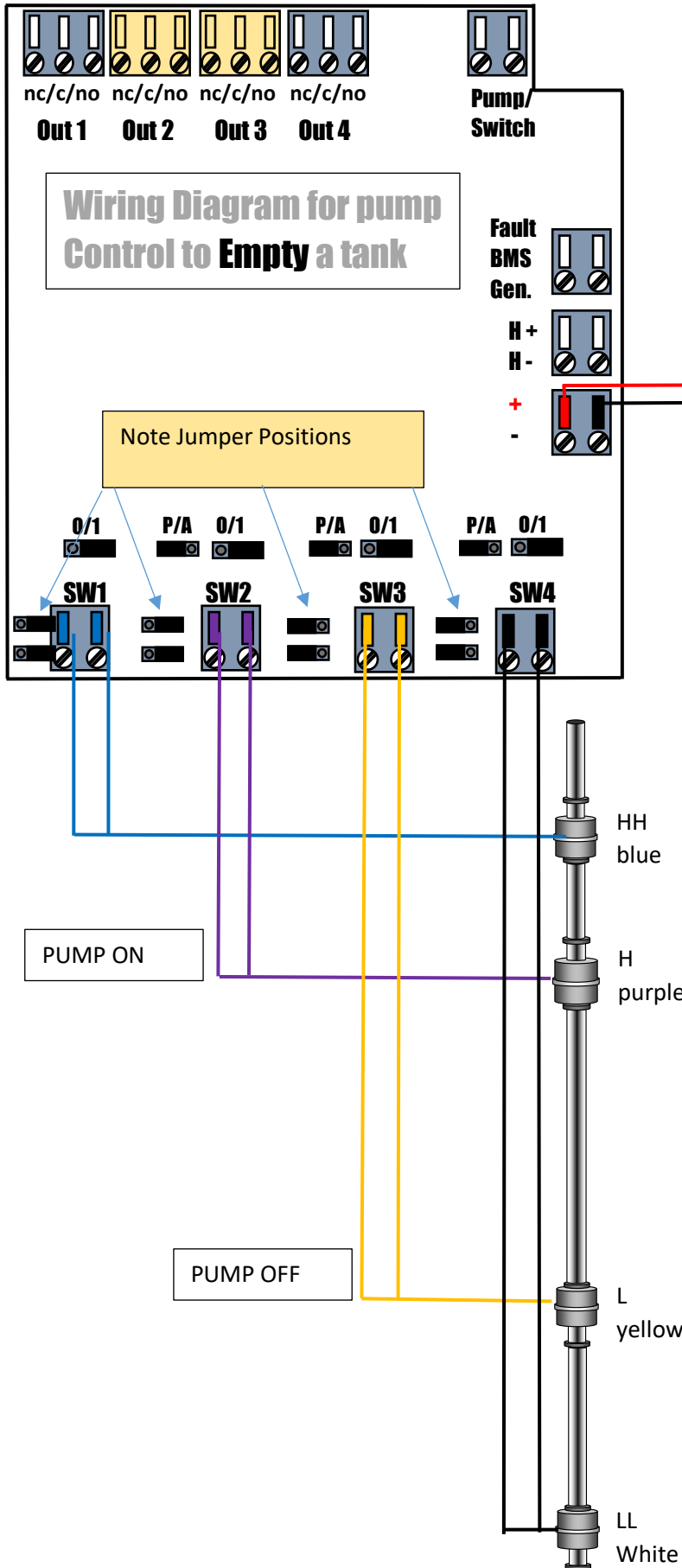
Connection Settings.

- 1/ Float switches from OLE are closed (NC), when they are in the DOWN position.
- 2/ The T4000 inputs can be switched from NC to NO as required using the 2 jumpers on each circuit.
- 3/ The 0/1 jumper can be removed to disable the Alarm circuit. (No LED)
- 4/ The P and A jumper are for when the system is being used as a Pump controller or as an Alarm.
- 5/ H+ H- is for an Audible Alarm that will activate when Flashing RED condition is present. (This is the supply voltage so 24vdc)

• Operation:

- 1/ When lights are GREEN = No Alarm
- 2/ When Lights Flash RED = Alarm / problem.
(ORANGE = PUMP ON)
- 3/ When the Acko button is pressed the Lights changed to fixed RED This Auto resets when Alarm condition is removed.
- 4/ The BMS output (MC) changes condition (Volt Free) when any of the alarms are flashing red or solid red.
- 5/ The P and A jumper are for when the system is being used as a Pump controller or as an Alarm.
- 6/ When in Pump Control mode, Relay OUTPUTS 2 and 3 are NOT operational
- 7/ When Input 4 is in "P" (Pump Control) this also SHUTS DOWN the PUMP CIRCUIT **FAIL SAFE**

RELAYS RATED AT 240 VAC 10 AMPS



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Units are supplied with either 24vdc direct connection, or 100/240 Vac power supply.

Power supply connection can be made by removing the removing the mounting bracket screws temporarily



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• Operation:

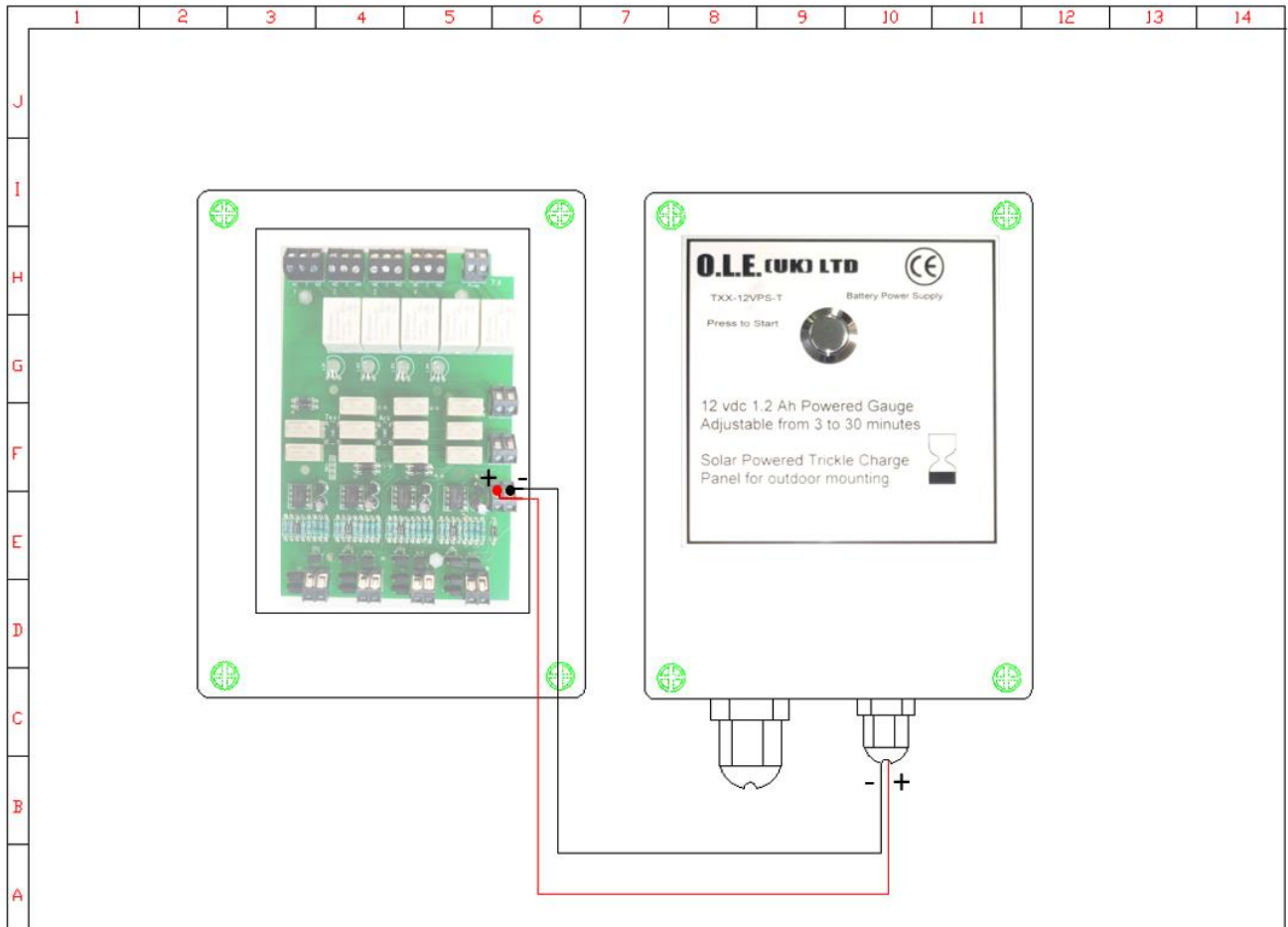
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- 4/ The BMS output (MC) changes condition (Volt Free) when any of the alarms are flashing red or solid red.
- 5/ The P and A jumper are for when the system is being used as a Pump controller or as an Alarm.
- 6/ When in Pump Control mode, Relay OUTPUTS 2 and 3 are NOT operational
- 7/ When Input 4 is in "P" (Pump Control) this also SHUTS DOWN the PUMP CIRCUIT **FAIL SAFE AVOID RUN DRY**

RELAYS RATED AT 240 VAC 10 AMPS

T4000-12ALSP

The T4000-12ALSP can be used in remote areas where there may not be any power, the unit is powered By a TXX-12VPS-T which is a 12vdc lead acid battery unit which is continuously being charged by a solar panel, power to the T4000 is initiated when the button on the front of the unit is pressed which then keeps the power to the T4000 for a predetermined programmed time.

Please see the TXX-12VPS-T manual for full operational details.



T4000-12ALSP unit wired to a T4000

FAQS

Q: Can the T4000 be used to control a Tank as well as emptying one.

A: Yes, the T4000 can be set to be used either way round and has an emergency automatic shut down when the High level is reached on tank filling applications.

Q: Can any type of level switch be used on the T4000.

A: Yes, If the switches are “simple apparatus” meaning reed switch or similar. (Not capacitive or resistance type)

Q: Can the T4000 Pump directly.

A: The T4000 can switch up to 10Amps at 250V, nothing with a greater current draw and working voltage above these values should be switched, if the circuit load is more than the allowed a separate contactor should be used in conjunction with the T4000.