

**Please read the mounting instructions and operating manual including the safety regulations completely prior to starting connection and start-up.**

## **Installation and Operating Manual TWIN V1.1**

The WLI (Water Level Indicator) had been designed for precise level measuring of supply water tanks in mobile homes, caravans and boats. The 18 mm mounting depth the electronic system allows flush mounting into commercial furniture boards to ensure that an optimum installation place can always be chosen without losing precious storage space.

**WLI requires installation of a tank transmitters (measuring sensors)** for example Votronic Tank Electrode 15-50 K or Tank Electrode 12-24 K.

The WLI device is equipped with the touch pad instead of mechanical switch to minimize the errors and longer durability.

The touch pad on the left side has ON/OFF function

The touchpad on right side switch WLI input between Fresh and Gray water tank

Water level measuring is effected continuously, intermediate values are displayed.

During refueling and defueling of the tanks, the continuously raising or dropping display shows a direct value of the instantaneous level in percentage.

Comparing to “standard version of WLI” has WLI TWIN these features:

- **WLI TWIN requires two measuring sensors** to display two different values of water level. One situated in Fresh water tank, second situated in Gray water tank. (Black water tank on individual request)
- Gray water tank volume is displayed in percentage value only. (can be programmed individually)
- Current in “Off mode” is a bit higher comparing to WLI due to circuit changes.
- Board voltage is displayed. If voltage is outside 11,8V to 14,8V the value is displayed red and blinking.
- Built in input protection for voltage over 5V. (Maximum measurable input value is still 5V)

### **Installation:**

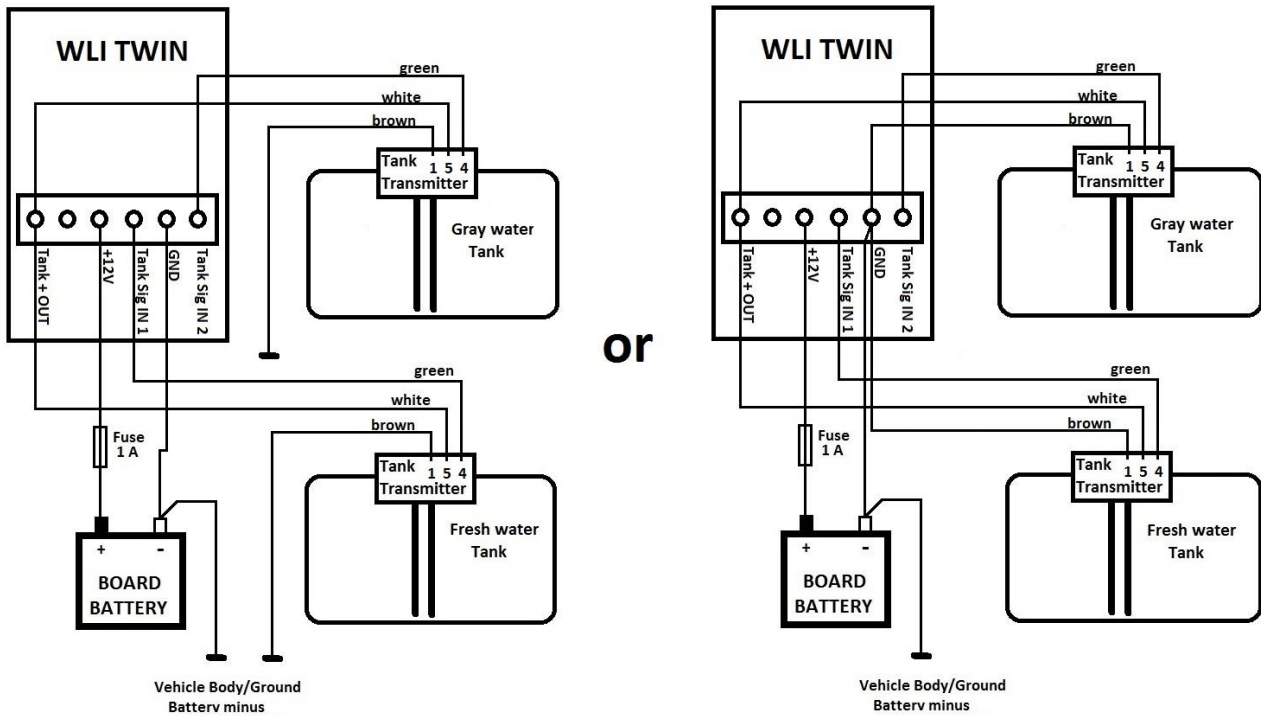
Choose a well visible and easily accessible location in the living area for the installation of the units. The installation place in the front panel of the furniture should be chosen in such a way that the contrast of the display be not hindered (ex: sunlight) and have a minimum 18mm depth for the mounting. The rear cutout opening should be covered with non-electrical conducting material (e. g. plastic plate, poplar plywood, or similar material).

The clear opening of the furniture cutout should be slightly larger than the assembly dimensions of 35 x 70mm to ensure safe alignment of the unit's front panel. Use the delivered jig for marking.

Make all electric connections, place the unit centrally in the cutout and use the delivered screws for fastening. (For front panel screws use **Torx T10H** screwdriver)

### Connection Plan:

- 1: Tank Sig IN 2 ..... Tank Signal (Measuring signal, output of the tank transmitter) **Gray water tank**
- 2: GND ..... Board Battery “-“ (Minus) / Ground / (usually the vehicle body)
- 3: Tank Sig IN 1 ..... Tank Signal ((Measuring signal, output of the tank transmitter) **Fresh water tank**
- 4: +12V..... Board Battery “+“ (Plus)
- 5: Supply OUT..... Output for special type of sensor – **Normally disconnected. Do not use this pin!**
- 6: Tank + ..... Output for **tanks transmitters power supply**. Gray and Fresh Water tank.



### Operation:

- To switch ON, touch the ON/OFF pad on left side. In a few second the display will show the instantaneous level of the fresh water. Graphical displayed water tank is divided to 100 levels. Each level corresponds to the tank water level in percentage.
- If the ON/OFF area is touched again, the device is switched-off.
- If you desire to display Gray water tank, touch the left touchpad once. If you will touch the touchpad again the Fresh water tank will be displayed.
- Numeric value in percentage is displayed when water level is above 0% and below 100%. Otherwise “EMPTY” or “FULL” is displayed.
- If water level is more than 0% the dropping water from the water tap is displayed on WLI as indication that device is correctly working. **It does not mean leakage in water system!**
- During defueling when water level decreases it will take around (1 – 5 sec) for the measuring value to stabilize due to water swirls in the tank. Correct value is displayed as soon as the water tap is closed and value can be 1-3% lower compared to the displayed value during the water pump is in operation (Depends on tank shape, tank volume, water pump and the distance between water pump and tank transmitter).
- If water level is below 20% or above 95% the numeric value is red colored (in Fresh water mode).
- If water level is 5% or less, inscription “EMPTY” is displayed (Fresh water mode).
- If water level is 95% or more, inscription “FULL” is displayed.

- If water level is 85% or more, red colored percentage value is displayed. (Gray water mode)
- 10 minutes after the last activity (changing the value), the WLI will be switched-off automatically for reason of power saving.
- 30 minutes after switched-on the WLI will be switched-off automatically.
- If backside jumper "LIT" is connected, WLI displays water level value on percentage and in liters too (Fresh water mode only). **An option is intended for custom production only!** The tank volume value cannot be changed by users. It is possible to order preprogrammed device via email: [info@kuzytronic.com](mailto:info@kuzytronic.com) otherwise is tank volume sets to 65 liters.
- Activation of the tank transmitters is effected together with the WLI (No power on tank transmitters when WLI is switched-off).

### Settings:

There are five jumpers on the backside of WLI

P1 .....	Decreasing preprogrammed tank volume minus 5 liters. (or as ordered)
LIT .....	When connected WLI displays value in liters as mentioned in section Operation. <b>Require factory programming to display correct value</b>
GRAY .....	Normally disconnected jumper. Allows to set the MIN/MAX value of <b>Gray Water tank</b> .
MAX .....	Normally disconnected jumper. Allows to set maximum water tank level (calibrate WLI and tank)
TST .....	Normally disconnected jumper. When connected WLI displays its diagnostic value as a MIN, MAX, Input voltage, Software version and Serial Number,
MIN .....	Normally disconnected jumper. Allows to set minimum water tank level (calibrate WLI and tank)

### Minimum water level setting:

(Not necessary to set MIN value if MIN = 0 which represent the empty water tank.)

A factory setting is MIN = 0

To set the MIN value to your desired value:

(Water level below MIN value will be displayed as 0%)

- switch-off WLI
- fill the desired water tank to the desired minimum value level
- connect jumper MIN
- if you want set the Gray water tank MIN, connect jumper GRAY
- switch-on WLI and wait until "MIN OK" is displayed
- switch-off WLI
- disconnect jumper MIN and jumper GRAY (if connected)

(The MIN value have to be less than MAX value, otherwise device will be set to factory value MIN = 0, MAX = 102).

### Maximum water level setting:

A factory setting is Max = 102, which represent measuring signal about 2,2V to display 100% water tank level. (The Votronic Tank Electrode 15-50 K tank signal output is 0 to 2,2V)

To set the MAX value/calibration of WLI and tank transmitter:

- switch-off WLI
- fill the desired water tank to the desired maximum value level

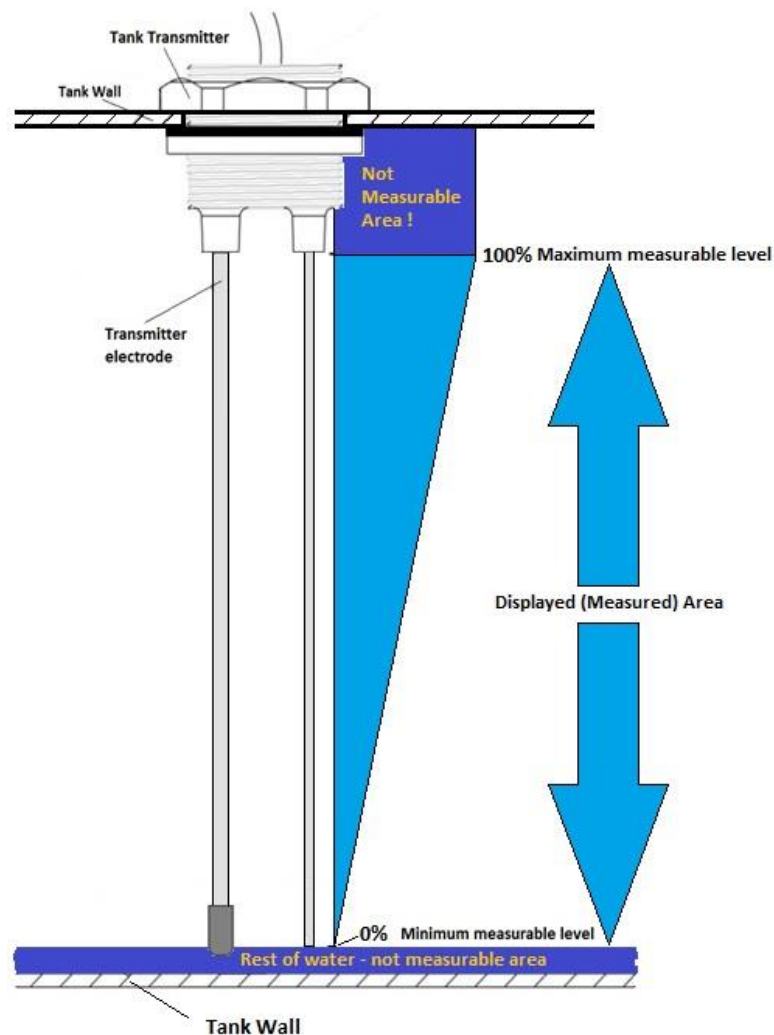
- connect jumper MAX
- if you want to set the Gray water tank MAX, connect jumper GRAY
- switch-on WLI and wait until “MAX OK” is displayed
- switch-off WLI
- disconnect jumper MAX and jumper GRAY (if connected)

#### To set MIN and MAX to factory value.

- switch off WLI
- connect both jumpers MIN and MAX
- switch on WLI. After a while MIN/Max factory value will appear
- Switch off WLI
- Disconnect jumpers. WLI is now set to default values for both water tanks

#### Notes:

1. **Maximum measured Tank signal is 5V.**
2. If MAX value is set, Tank signal greater than MAX value will be displayed as a MAX value.
3. The MAX value has to be more than MIN value, otherwise device will be set to factory default value.
4. If the water level lies outside the Transmitter electrode, WLI will display MIN or MAX value.
5. To display the correct value, MIN and MAX have to lie between the Maximum measurable and Minimum measurable level (see picture below).



6. Transmitter plastic body is not measurable area. If water level lies in this area, WLI will display “FULL” tank.
7. When jumper GRAY is connected WLI will not display Fresh water even if touching left touchpad.

8. If you desire to check MIN/MAX value you can connect TST jumper. MIN and MAX jumpers have to be disconnected! Diagnostic mode will appear. Use left touchpad to switch the water tanks. Do not use this mode if not necessary.

**Every single device is checked before selling.**

Spare parts and front panel spacers (3mm to 25mm) is possible to order on [kuzytronic@gmail.com](mailto:kuzytronic@gmail.com)

The front panel can be made to order according to the specified dimensions and customer needs.

**Check newer version of manual on [www.kuzytronic.com](http://www.kuzytronic.com)**

If you have any questions or tips for improving WLI or if you want help me to improve English in this manual do not hesitate contact me.