HYTEK Z5020 EX CERTIFIED TANK MONITOR

Applies to the following models ONLY:

~~Z5020-1A-ATEX...~~

-A12 -A14 -A16

-A18 -A20

Please read carefully BEFORE commencing installation.

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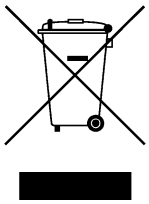
ENVIRONMENTAL INFORMATION



UK Regulation S1 2013 3113 requires that the equipment bearing this symbol on the product and/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product must be disposed of separately from regular household waste streams. It is your responsibility to dispose of this electronic equipment via designated collection facilities appointed by the government or local authorities.

PRODUCT DESCRIPTION

The Hytek Tank Monitor is a simple, ATEX & UKEX certified electronic gauge for monitoring the fluid level inside fuel storage tanks of any shape or size up to 10m in height. It is designed to be used on petrol, kerosene, diesel, biodiesel up to B100, AdBlue® and antifreeze with a specific gravity between 0.6 – 1.4. The System utilises a precision electronic pressure sensor to give a c onsistent and accurate reading. Optional ATEX bund alarm probe and water sensing probe available. The monito bears the following marking:

Certificates: HYT-23ATEX0101X, HYT-23UKEX0100X

0/- IIC T4 Ga

IMPORTANT WARNING NOTES

1. Display is IP 65 weatherproof, for safe area. Intrinsically safe probe sensors must be used for Zone 0/1 installation. Connection to zone 0/1 must be by way of a suitable Ex certified internal barrier for volume measurement sensors and mechanical level alarm sensors.
2. Probe is suitable for use in zone 0/1 but the equipment monitoring/display and control units along with the barrier housings must be located in safe/non-hazardous area.
3. The float switch incorporates an isolated metal part which could become either charged in use or be a discharge point for charged liquids upon filling or emptying. The float switch shall only be used in applications where static generated via contact liquids are controlled so as not to be considered an ignition source.
4. Mains power must be 50mm minimum from intrinsically safe circuits.
5. The tank probe must be installed in a vented tank.
6. Any cable junctions in a hazardous zone must be by way of suitable Ex certified enclosures.
7. Installation of this equipment and its associated tank fittings should only be carried out by qualified fuel installation engineers and must conform to the latest relevant electrical and local authority regulations and standards.

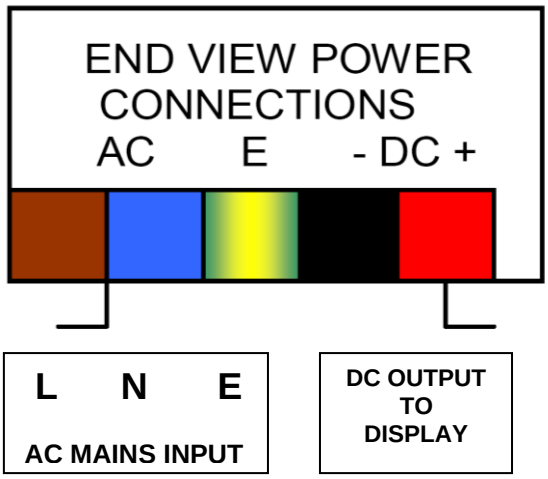
INSTALLATION INSTRUCTIONS

The tank gauge kit comes supplied with the following items:

- Metal tank connector - 1” BSPT fitting.
- Junction box for extending the cable

FITTING THE GAUGE

1. **The display & barrier must be located in safe zone only.** The gauge can be mounted outside directly on the tank or in the immediate vicinity. The gauge can be mounted up to 100m from the tank top if the supplied probe cable is extended using suitable shielded data cable. A junction box is supplied.
2. Remove the casing and mount the gauge onto a suitable surface using the supplied M4 bolts. Mounting-hole positions are shown on the rear of the case. See mounting diagram on page 10.
3. Supply the transformer with a suitable mains power supply**. Mains power supply shall be installed in such a way that the Zone 0/1 cable entries do not come closer than 50 mm to AC Power Cables.** Check model for voltage. See photo and diagram below. The transformer mounting rail can be temporarily removed to allow easier access to the power connection terminals.



FITTING THE PROBE

1. Ensure that there is an opening (with a cap or flange) on the top of the tank wide enough for the probe to go through.
2. The metal tank connector is a 1” BSPT fitting. The optional plastic tank connector is a 30mm compression fitting, which requires a 30mm hole to be cut into the plastic tank.
3. Carefully slide the probe into the tank
   IMPORTANT: Ensure that the probe is suspended 50mm from the bottom of the tank before tightening the gland on the tank top fitting. This will ensure that water or sludge does not affect the probe sensor.
4. If you need to cut the probe cable to a shorter length then strip back 250= mm of the outer sheathing and use the nylon cords to tie and support the= weight of the probe. Cut the vent tube to around 30 mm long and cut the= cores to 170 mm long.
5. If the junction box assembly is to be used to extend the cable, then allow= for some height adjustment when the probe is in the tank.
6. Using the terminal block provided, connect the wires to the interconnecting= cabling. This should be twisted screened pairs, back to the display. The= enclosures glands are such to allow atmospheric pressure equalisation=
   IMPORTANT: Ensure that the breather tube for the probe is not obstructed, sealed, or kinked in any way as this will affect the accuracy of the tank gauge.

   BROWN = Pressure sensor +24vdc
   GREEN = Pressure sensor –ve
   WHITE = Not used

8. Silica gel packs are fitted to absorb any moisture. (Air flow is minimal)
9. Power up the gauge and ensure that the reading is accurate. The gauge is supplied pre-configured by Hytek so no further calibration or set up is required on site.

FITTING MECHANICAL BUND OR HIGH-LEVEL ALARM (OPTIONAL)

IMPORTANT: Any bund or water sensing float switches connected **MUST** be Ex certified and connected via a barrier.

1. If a mechanical bund probe is supplied, then wire this onto the PCB as shown in the diagram on page 8. Note PCB jumper position.
2. If a mechanical high-level probe is supplied, then wire this onto the PCB as shown in the diagram on page 8. Note PCB jumper position.

EXTERNAL DEVICE CONNECTION

- If the optional relay board is supplied, then connect the required external devices to the relay output(s).
- The preset alarm settings can be found on the sticker on the underside of the gauge lid. These alarm settings cannot be adjusted on site.

The default alarm settings are as follows:

MASTER ALARM = 95% High Level Alarm
ALARM 1 = 90% High Level Alarm
ALARM 2 = 20% Low Level Alarm
ALARM 3 = 05% Low Level Alarm

- Each of the 4 control outputs has 2 sets of contacts, SPDT. Common, Normally Open and Normally Closed VOLT FREE (240vac 0.5A)

- The “M” Circuit can be acknowledged from the front panel, so should be considered when used for control.

- The “1” “2” “3” Triggers cannot be acknowledged. (These only show on the front display if there are no mechanical alarms connected.

- All 4 alarm set points are set using the configuration software.

- Alarm will sound when Master Alarm Level is reached, and when “B” Bund or Water Bottom Alarm activates, and when “H” Alarm activates (if fitted)

OPERATION

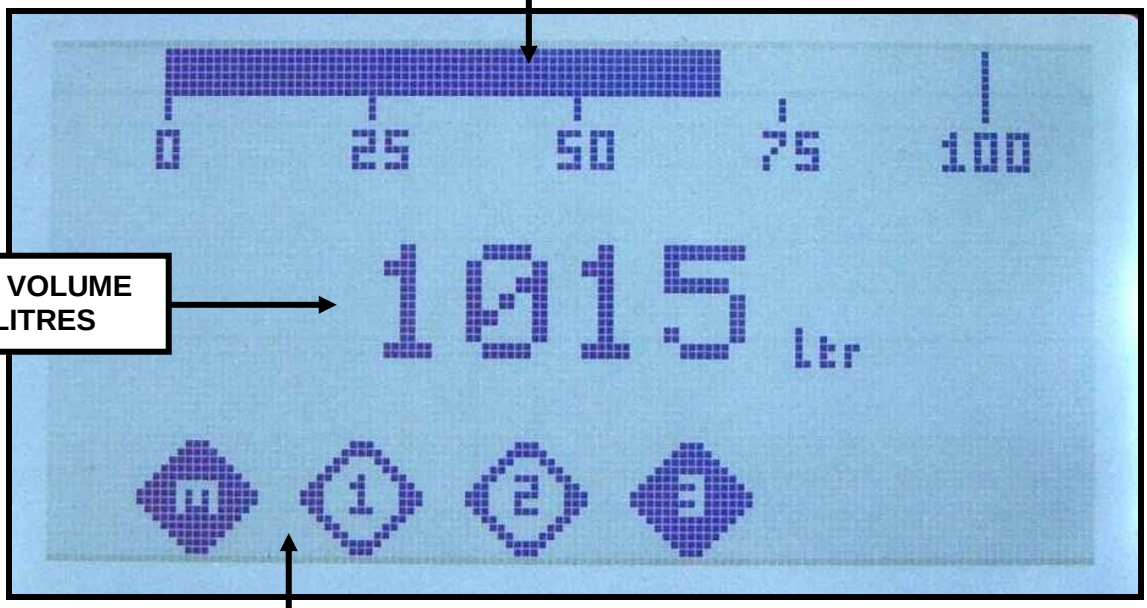
The gauge is very easy to operate and has the following buttons:

TEST BUTTON: This is an Alarm / Test-Mute button. Press and hold for 5 seconds to test the alarm. Press again to mute the alarm. If an alarm has been ‘Muted’ the Alarm symbol shows a crossed-out image. If a bund alarm is incorporated, this shows as a ‘B’ on the bottom line of the display.

SCROLL BUTTON: There is a Scroll button, which shows Tank Name, Capacity and Ullage space. This will show for 5 seconds before reverting to the standard display.

DISPLAY

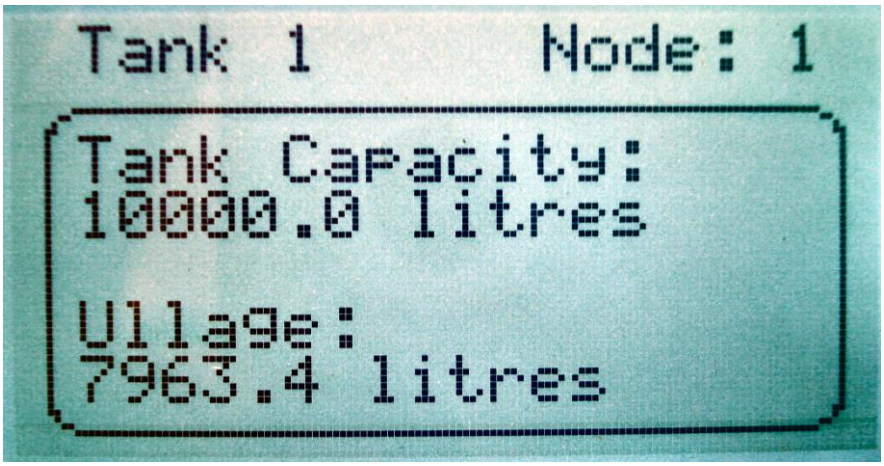
VISUAL TANK CAPACITY GRAPHIC BAR (%)



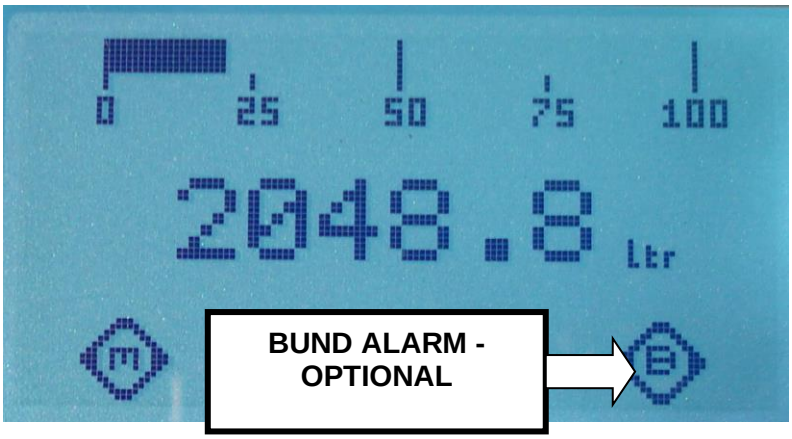
TANK VOLUME IN LITRES

ALARM STATUS ICONS:
BLACK = ACTIVE
TRANSPARENT = NOT ACTIVE

MUTED MASTER ALARM =

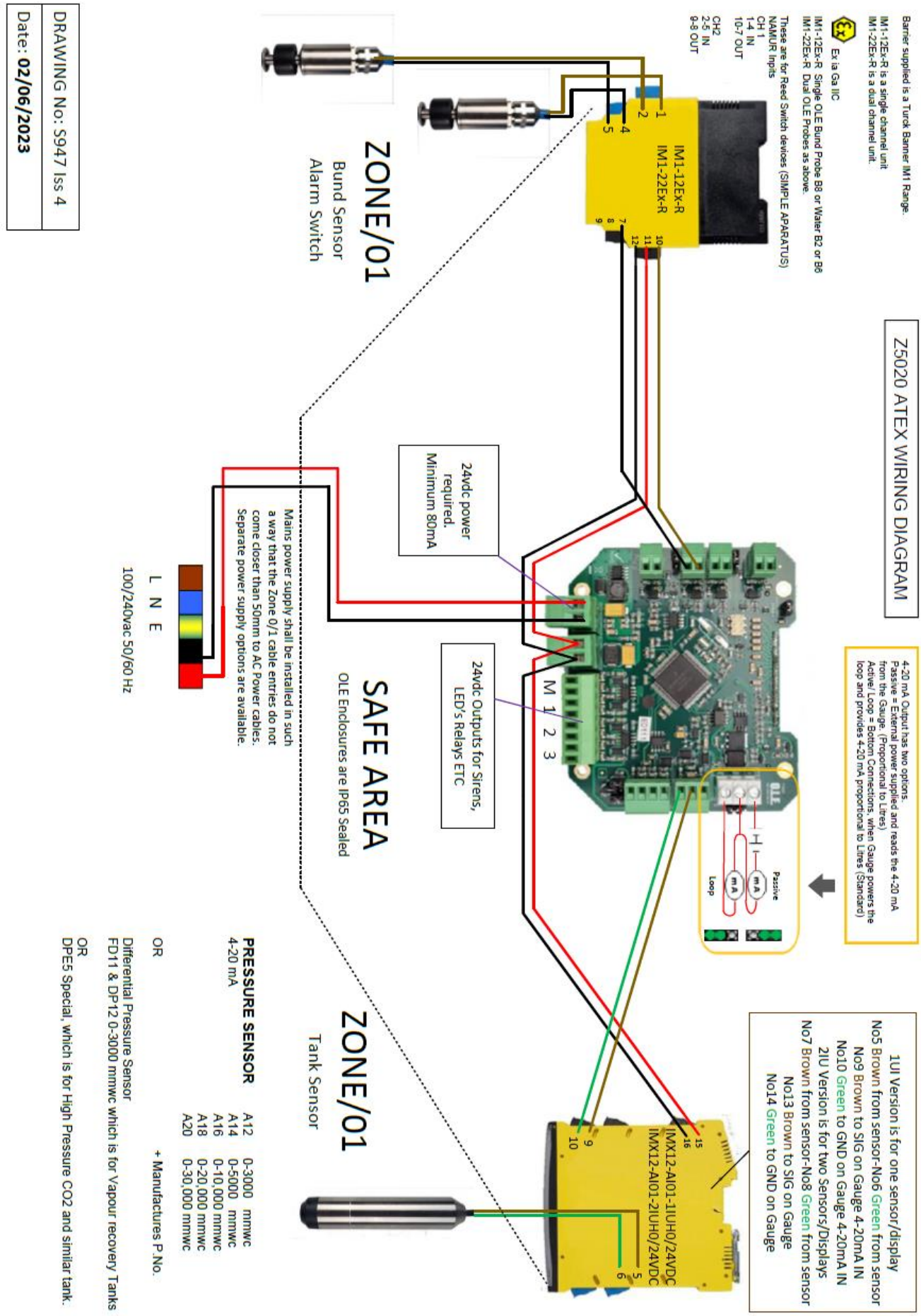


TANK CAPACITY AND ULLAGE SPACE.



BUND ALARM - OPTIONAL

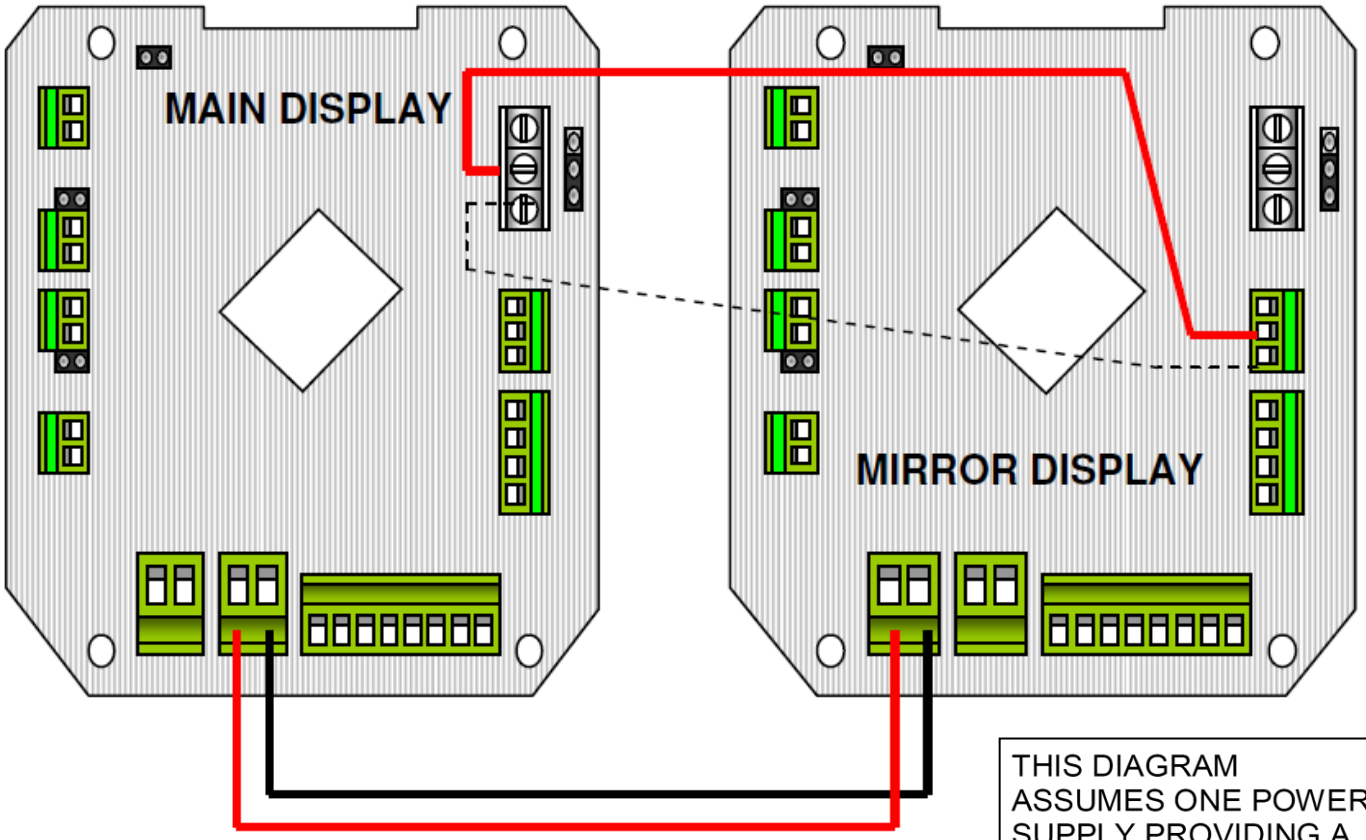
PROBE WIRING DIAGRAM



DRAWING No: S947 Iss 4
Date: **02/06/2023**

MIRRORED SLAVE DISPLAY

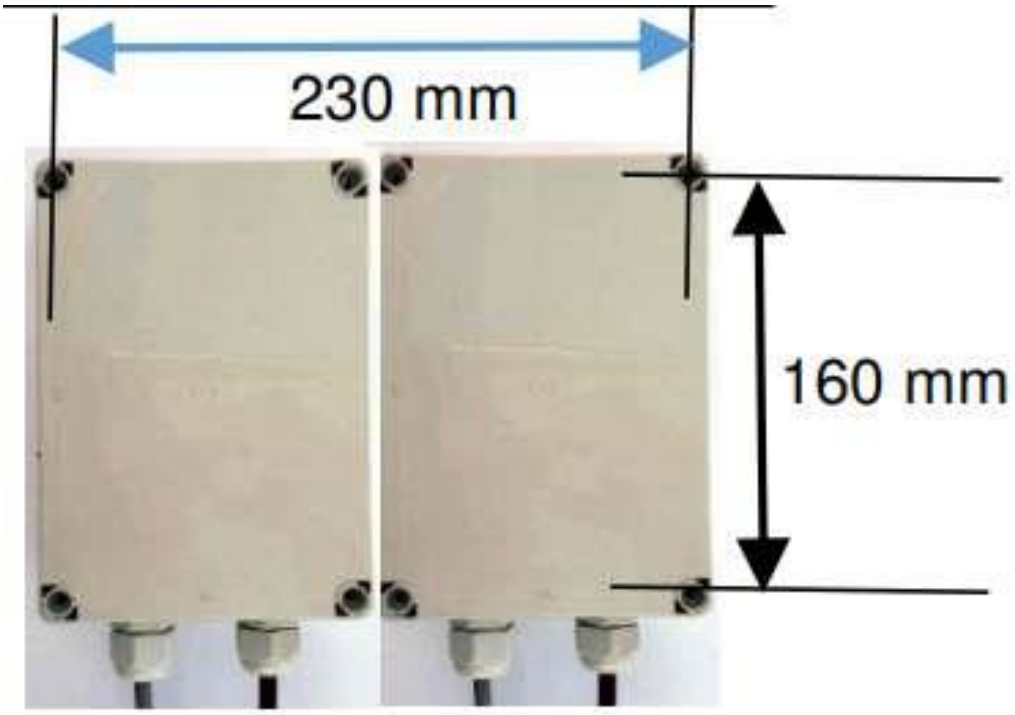
There is an option to fit a slave display that can act as a remote readout. This slave display mirrors the reading from the master display and does not require its own PSU as it takes its power from the master gauge. Please note the master display will need to be re-programmed by Hytek if a slave display is not part of the original installation and is added at a later date. The connection diagram is below.



THIS DIAGRAM ASSUMES ONE POWER SUPPLY PROVIDING A COMMON NEGATIVE TO BOTH BOARDS.
FIT THE DOTTED WIRE IF THE DEVICE DOES NOT OPERATE.

DIMENSIONS

The display may be mounted on walls or panels by utilising the displays own mount holes and using these will retain the IP66 integrity. Allen cap or cross head M4 bolts are ideal for this. The mounting dimensions are shown in the diagram below.



SPECIFICATIONS

- ATEX & UKEX certified.
- Power supply: 110/230V AC 50/60Hz
- IP66 Fully weatherproof enclosure
- Accuracy: +/- 0.25%
- -5 to +60 Degree operating temperature
- Optional mirrored display output
- Display enclosure is RoHS and CE compliant.
- **Alarm Functions**
  4 x Programmable alarm/ trigger set-points, (see outputs).
  E.g., High Level Local alarm with acknowledge circuit.
  Pump / valve control, Flashing Beacon alarm, Bund Alarm.
  Optional Integrated Bund Alarm with Acknowledge circuit.
- **Cable connections**
  Weatherproof cable glands are provided for power supply and signal inputs. Screw down & plug in Terminal strips are provided within the enclosure
- 4-20 mA output for BMS + Modbus as standard
- M= Master alarm % Settable provides 110 dB at 1 meter, and has a front panel acknowledge button. Test and Mute function supplied as factory standard
- H = Additional Contact Alarm, such as Low level or Mechanical High Switch (NC)
- B = BUND Contact Alarm, for mechanical Switch (NC)

DECLARATION OF CONFORMITY

Company Name:	**Hytek (GB) Ltd**
Address:	**Delta House** **Green Street, Elsenham** **Bishop's Stortford, Hertfordshire** **CM22 6DS**
Date of Issue:	**12th January 2023**
Equipment Details:	**Z2000, Z5020 Tank Gauge Systems and Z4000 Pump Controller** Z2000-A-ATEX-xxx, Z5020-1A-ATEX-xxx, Z4000-1A-ATEX-xxx
Applicable Directives: & Standards	**SI 2016 1091 Electromagnetic Compatibility Regulations**
	SI 2016 1101 Electrical Equipment Safety Regulations
	SI 2008 1597 Supply of Machinery Safety Regulations
	SI 2013 3113 Waste Electrical & Electronic Equipment Regulations
	SI 2012 3032 Restriction of Use of Certain Hazardous Substances Regulations
	SI 2016 No. 1107 Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations EN 60079-0:2018
	UKEX Self Certification Certificate Number: HYT-23UKEX0100X Issue 1 Issued by: Hytek (GB) Ltd Delta House, Green Street, Elsenham Bishops Stortford, Hertfordshire, CM22 6DS Marking: Ex 0/- IIC T4 Ga
	2014/34/EU ATEX Directive EN 60079-0:2018
	ATEX Self Certification Certificate Number: HYT-23ATEX0101X Issue 1 Issued by: Hytek (GB) Ltd Delta House, Green Street, Elsenham Bishops Stortford, Hertfordshire, CM22 6DS Marking: Ex 0/- IIC T4 Ga
Declaration Number:	**UK156 Issue 1**

On behalf of the above-named company, I declare under our sole responsibility that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives.

Clive Wellings

Clive Wellings, Process Co-ordinator 12th January 2023, Bishop's Stortford, Herts

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	2014/35/EU Low Voltage Directive
	2006/42/EC Machinery Directive
	2012/19/EU Waste Electrical & Electronic Equipment Regulations
	2011/65/EU Restriction of Hazardous Substances Directive (RoHS2)
	SI 2016 No. 1107 Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations EN 60079-0:2018
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Declaration Number:	**EU158 Issue 1**

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