Technical Data

HYTEK
Fluid Transfer Solutions

HYTEK EX5020
EX ZONE 2 CERTIFIED
TANK MONITOR



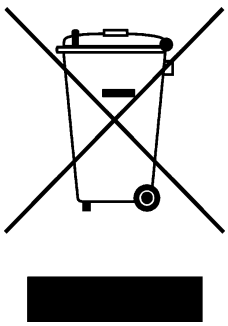
Applies to the following models ONLY:

EX5020-ATEX-Axx

Please read carefully BEFORE commencing installation.

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CM22 6DS UK.
Registered in England No. 1915382
Tel: +44 (0) 1279 815 600
Email: info@hytekgb.com

ENVIRONMENTAL INFORMATION



UK Regulation SI 2013 3113 and EU Directive 2012/19/EU require 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 and other electric and 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 only for petrol, kerosene, diesel, biodiesel up to B100, AdBlue® and antifreeze with a specific gravity between 0.6 – 1.4. The System uses a precision electronic pressure sensor to give a consistent and accurate reading. Optional ATEX water sensing and bund alarm probes available. The monitor bears the following marking:

Certificates: HYT-25UKEX0104X, HYT-25ATEX0105X

II 3G Ex nR [ia] IIC T6

IMPORTANT WARNING NOTES

1. Display is IP 67 weatherproof, for Zone 2, 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 can be in a Zone 2 location.
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 circuits 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 shall only be carried out by suitably trained and Competent persons as per DSEAR and other regulations and must conform to the latest relevant electrical & Mechanical and National & local regulations and standards.

INSTALLATION INSTRUCTIONS

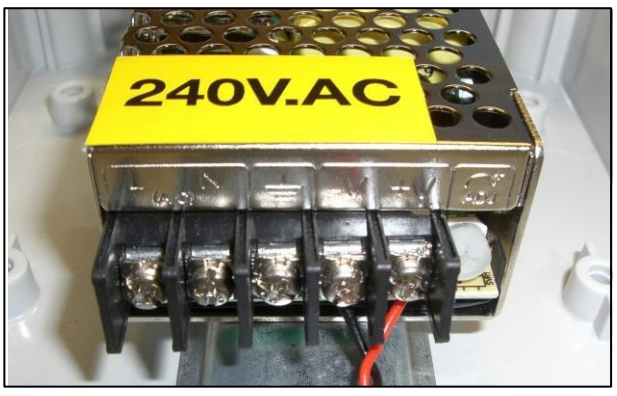
The tank monitor kit comes supplied with the following items:

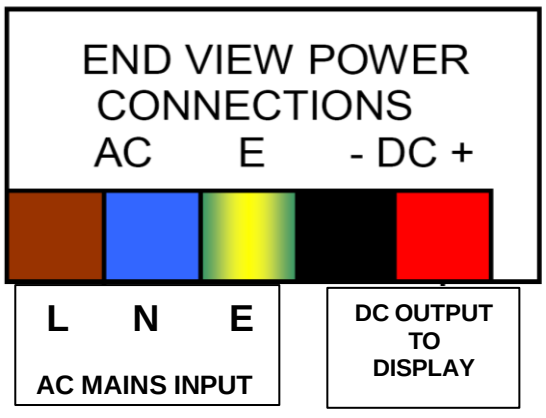
Metal tank connector - 1" BSPT fitting

Junction box for connecting Probe

1. **The gauge enclosure is approved to be installed in a zone 2 location.** The gauge can be mounted outside directly on the tank or in the immediate vicinity. The gauge can be mounted up to 1000m from the tank top if the supplied probe cable is extended using suitable shielded data cable. An ATEX certified tank mount probe junction box is supplied for installing the probe this is required to be used, at no point should the probe be installed directly into the gauge.
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 9.
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 and IS Circuit cable and conductors 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.

TRANSFORMER - 240V UNIT





INSTALLATION INSTRUCTIONS cont...

4. 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.
5. 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.
6. Carefully slide the probe into the tank.
7. **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.
8. 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.
9. The supplied Junction box needs to be used, this allows the Probe vent tube to be vented to atmosphere.
10. Using the terminal block provided, connect the conductors to the interconnecting cabling. This should be by twisted screened pairs, back to the display. The Enclosure is airtight to ensure it is Zone 2 approval
11. **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 = Earth/Ground

12. Silica gel packs are fitted to absorb any moisture.
13. **Before fitting the front cover, ensure the gasket is not damaged or dislodged, if any damage is noted do not use and contact Hytek for a replacement. (EX5020.COVKIT)**

    Failure to do so will result in non-compliance and will void the ATEX certification.

14. Energize 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)

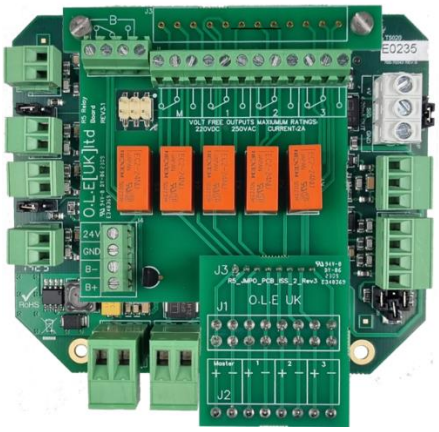
IMPORTANT: Any bund or water sensing float switches connected MUST be Ex certified and connected via the barrier supplied.

- All additional level probes or bund probes will be prewired during manufacture. Connections on site will be made to the junction box supplied

Failure to do so will result in non-compliance and will void the ATEX certification.

EXTERNAL DEVICE CONNECTION

- If the optional R5 relay board is supplied, then connect the required external devices to the relay output(s).



- Any device connected must be placed in a safe zone, or an appropriate Atex approved barrier must be installed.

Failure to do so will result in non-compliance and will void the ATEX certification.

- 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 Ma Alarm Level is reached, and when “B” Bund or Water Alarm activates, and when “H” Alarm activates

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.

ROUTINE INSPECTION

An annual inspection is required to ensure the unit is in a serviceable condition.
The following items must be inspected:

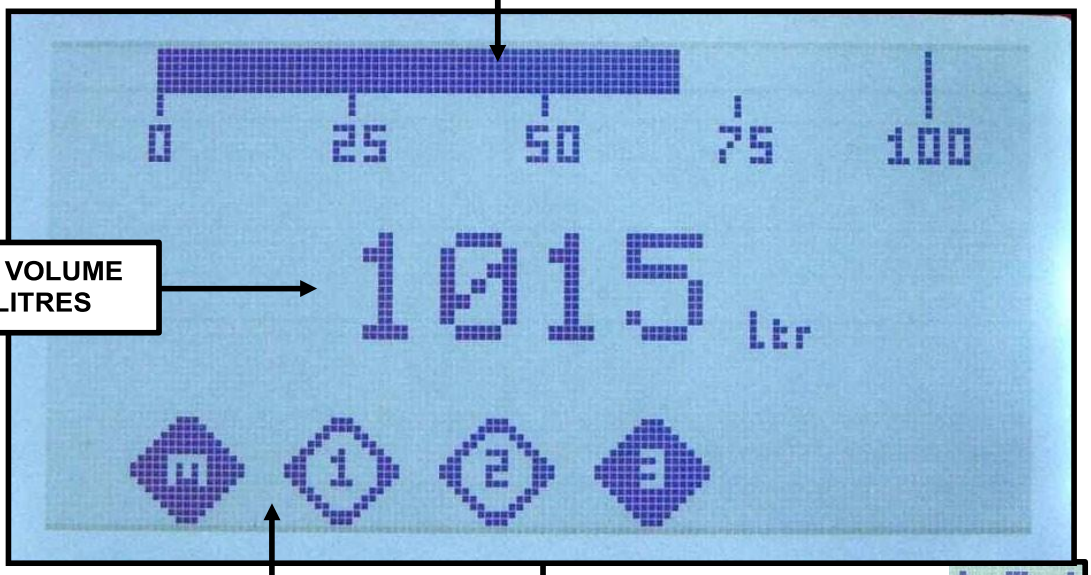
- Inspect Display Label and Test / Mute Buttons for wear, any break in the label surrounding the buttons requires a replacement front (EX5020.COVKIT)
- Inspect the enclosure for damage, any damage that risks the integrity of the airtight seal must be reported.
- Inspect the glands are tight.
- Clean with a damp cloth only

If any of the above inspections reveal a failure in the integrity of the airtight seal. The unit must be removed from operation until the fault is repaired, or the unit is replaced.

Failure to do so will result in non-compliance and will void the ATEX certification.

DISPLAY

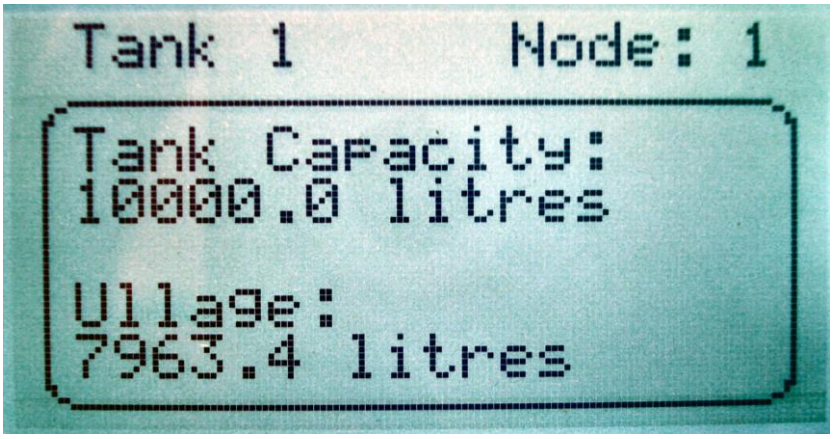
VISUAL TANK CAPACITY GRAPHIC BAR (%)



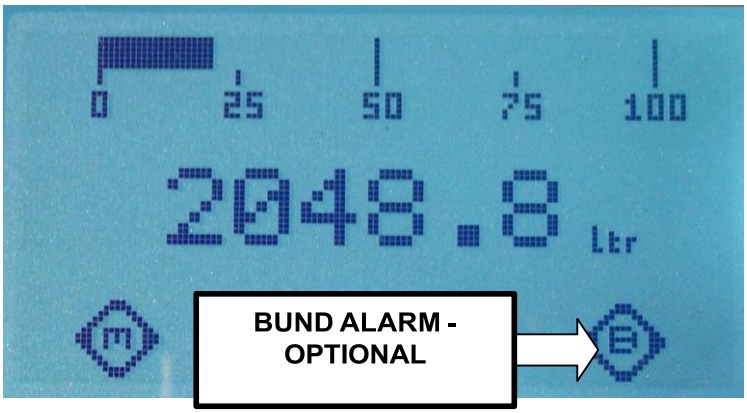
TANK VOLUME IN LITRES

ALARM STATUS ICONS:
BLACK = ACTIVE
TRANSPARENT = NOT ACTIVE

MUTED MASTER ALARM =

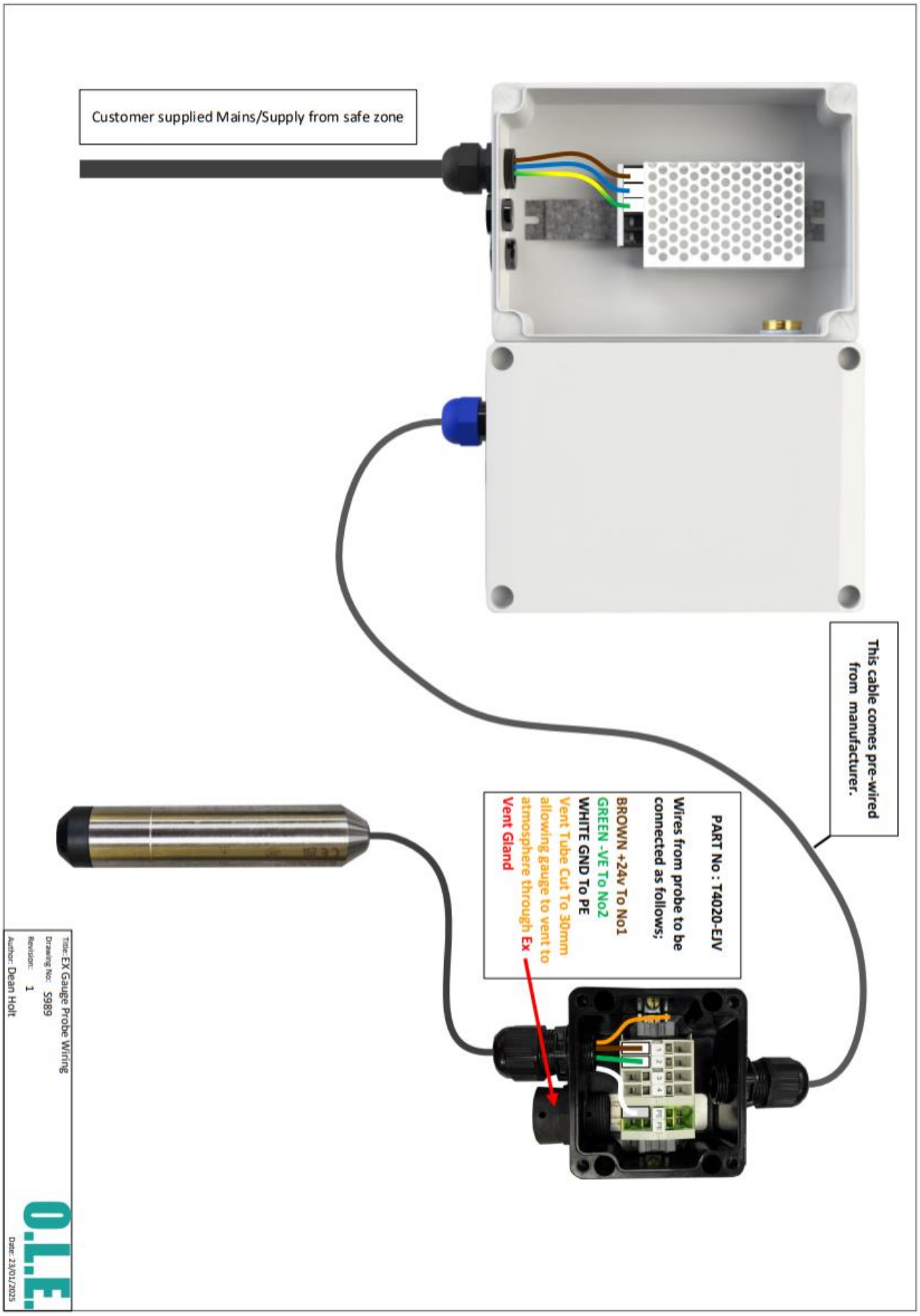


TANK CAPACITY AND ULLAGE SPACE.

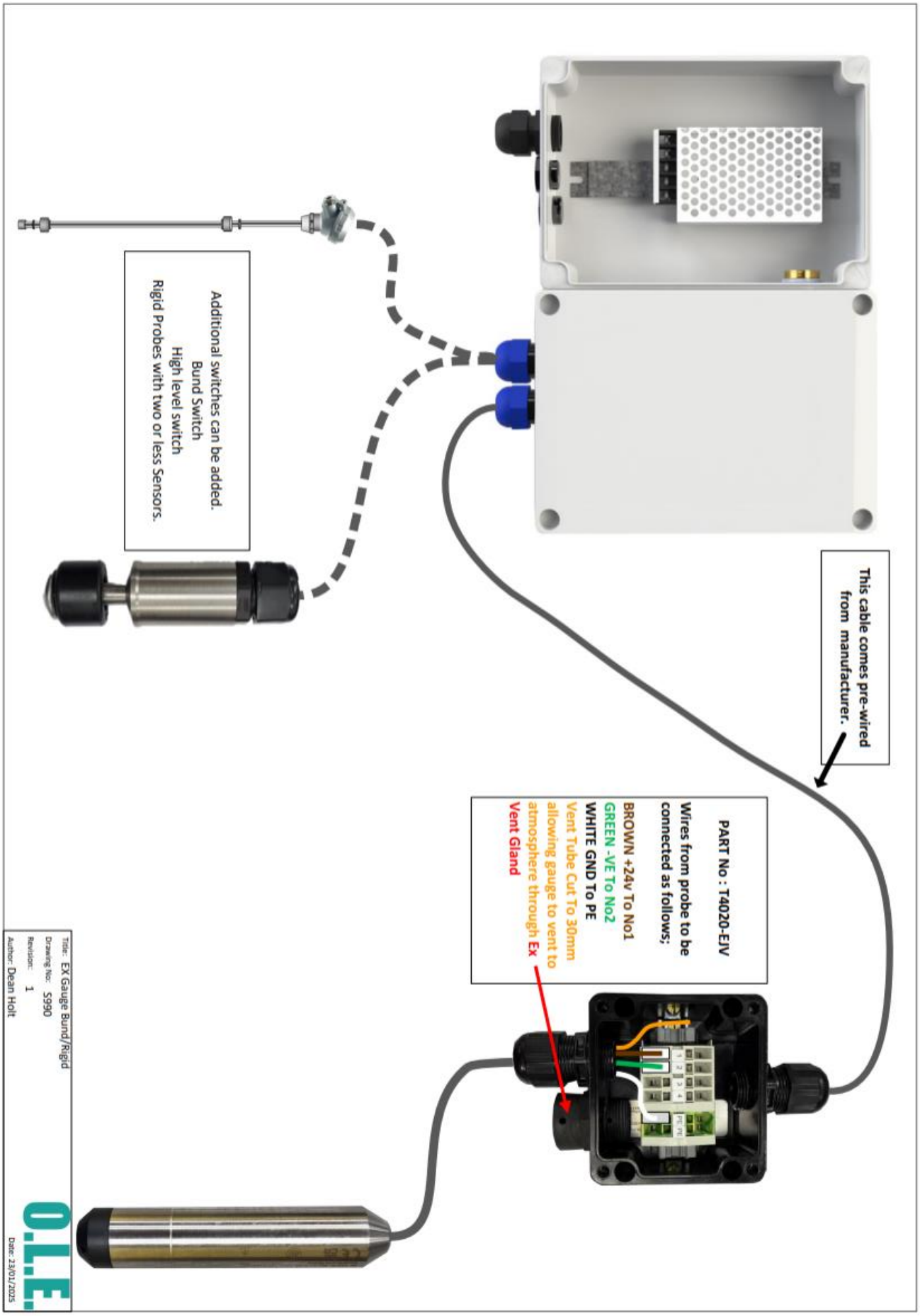


BUND ALARM - OPTIONAL

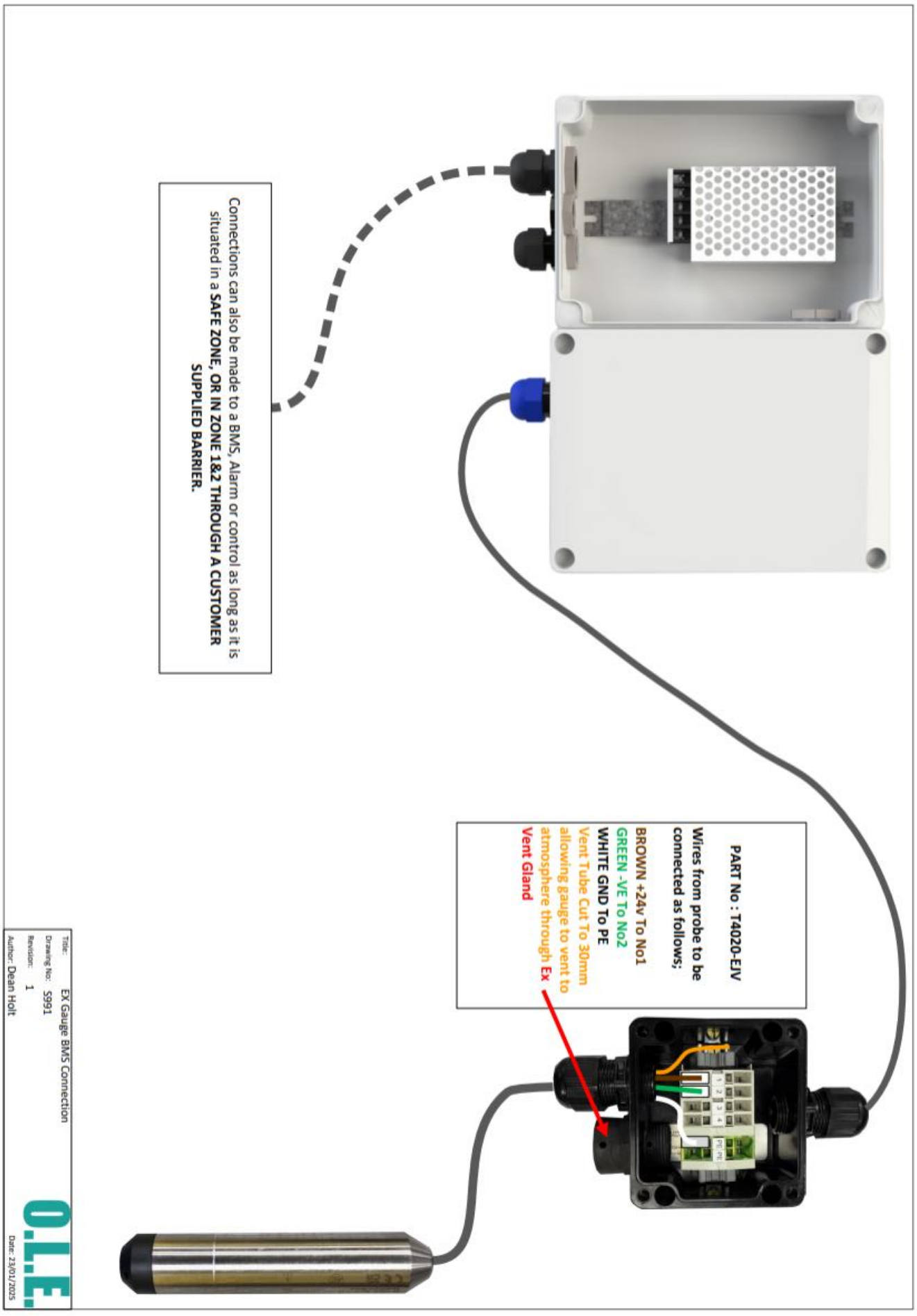
PROBE WIRING DIAGRAM



ADDITIONAL ALARM WIRING

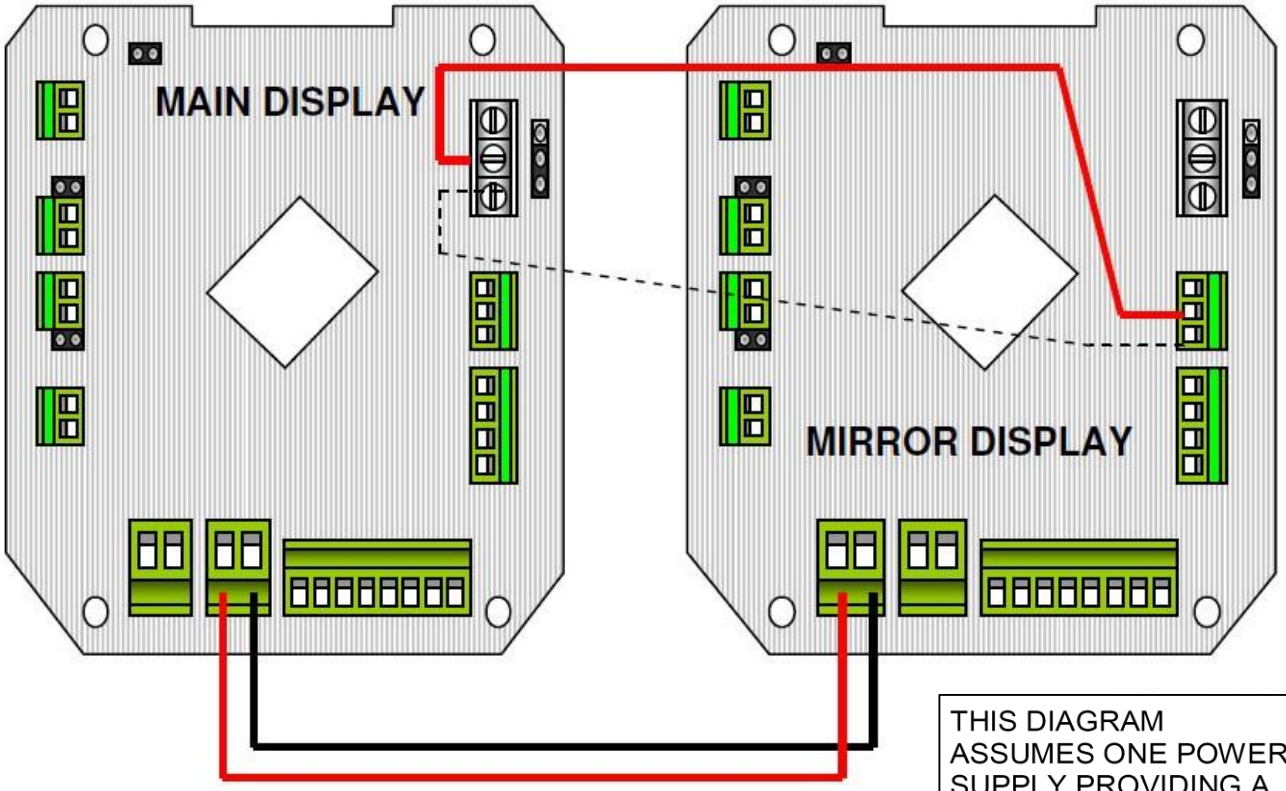


ALARM OUTPUT WIRING



MIRRORED SLAVE DISPLAY

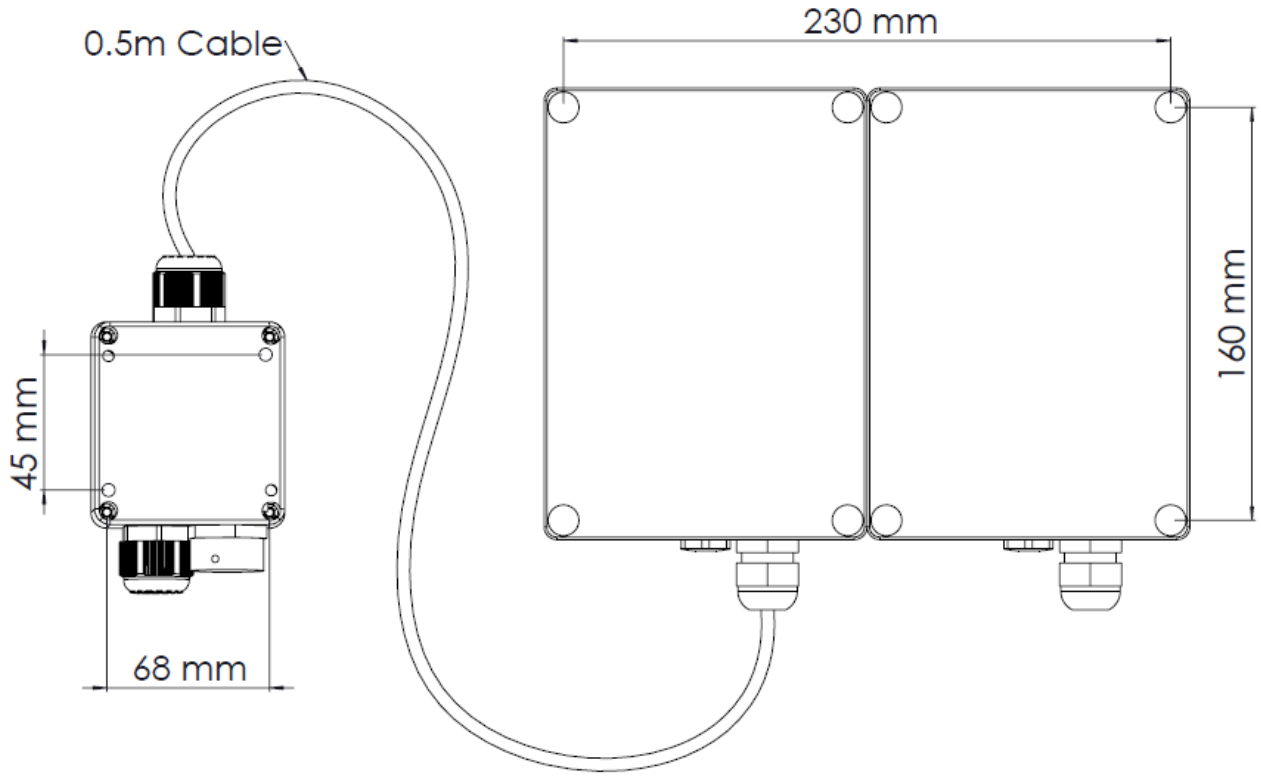
There is an option to fit a slave display that can act as a remote readout. This slave display mirrors the reading from the master display and does not require its own PSU as it takes its power from the master gauge. Please note the master display will need to be re-programmed by Hytek if a slave display 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

UK/EU DECLARATION OF CONFORMITY

Company Name: **Hytek (GB) Ltd**

Address: **Delta House, Green Street, Elsenham**
Bishop's Stortford, Hertfordshire, CM22 6DS

Date of Issue: **8th January 2025**

Equipment Details: **EX2020 and EX5020 rand of Tank Gauge Systems**

Applicable Directives: & Standards

S1 2016 1091 Electromagnetic Compatibility Regulations
2014/30/EU EMC Directive

SI 2016 1101 Electrical Equipment Safety Regulations
2014/35/EU Low Voltage Directive

SI 2008 1597 Supply of Machinery Safety Regulations
2006/42/EC Machinery Directive

SI 2013 3113 Waste Electrical & Electronic Equipment Regulations
2012/19/EU Waste Electrical & Electronic Equipment Directive

SI 2012 3032 Restriction of Use of Certain Hazardous Substances 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
BS EN IEC 60079-0:2018+A11:2024
BS EN IEC 60079-15:2019

UKEX Self Certification Certificate
Number: HYT-25UKEX0104X Issue 1
Issued by: Hytek (GB) Ltd
Delta House, Green Street, Elsenham
Bishops Stortford, Hertfordshire, CM22 6DS

Marking: Ex II 3G Ex nR [ia] IIC T6

2014/34/EU ATEX Directive
BS EN IEC 60079-0:2018+A11:2024
BS EN IEC 60079-15:2019

ATEX Self Certification Certificate
Number: HYT-25ATEX0105X Issue 1
Issued by: Hytek (GB) Ltd
Delta House, Green Street, Elsenham
Bishops Stortford, Hertfordshire, CM22 6DS

Marking: Ex II 3G Ex nR [ia] IIC T6

Declaration Number: **UK173 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
8th January 2025, Bishop's Stortford, Herts