



**INSTALLATION OPERATION AND
MAINTENANCE INSTRUCTIONS
EXHEAT FLR TYPE FLAMEPROOF
RADIATORS**

**Please read these instructions thoroughly before installation and ensure they are
passed on to the end-user**

1.0 GENERAL

- 1.1 All work should be carried out by suitably qualified personnel.
- 1.2 Equipment must be handled with care and stored in dry conditions.
- 1.3 **CAUTION** – these radiators are heavy and must be handled appropriately:
 - 50kg FLR1
 - 100kg FLR2
 - 150kg FLR3
- 1.4 Carefully remove all protective packaging and visually inspect unit for any transit damage.
- 1.5 All prevailing rules, regulations and bylaws in force at the time and place of installation must be observed.
- 1.6 Any modification not carried out by Exheat Limited or its approved agent will invalidate certification and warranty.
- 1.7 This is a hazardous area heater. Reference must be made to EN 60079-17 & IEC 1241-1-2.
- 1.8 All electrical testing must be carried out in a non-hazardous area.
- 1.9 Precautions must be taken to prevent damage to machined surfaces and threads of flameproof enclosures.
- 1.10 Ensure that any special conditions for safe use detailed on the hazardous area certification are complied with.
- 1.11 **CAUTION** – the liquid within the radiator contains glycol and must not be consumed. Should a leak occur the heater must be de-energised immediately and returned to Exheat for repair. Any leaks must be cleared up with care and hands washed immediately after contact.

2.0 INSTALLATION

- 2.1 The radiator should be securely fixed in position with the wall brackets supplied and all terminal connections checked for tightness before energising.
- 2.2 The correct installed orientation is with the heater lowermost in the radiator.
- 2.3 The installer or end user shall ensure that the unit has free and unrestricted air flow to allow natural convection to occur at all times. **DO NOT COVER** the radiator and do not allow anything to rest on or against it.
- 2.4 At no time is the ambient temperature to be allowed to rise above 40°C.

3.0 ELECTRICAL SUPPLY CONNECTION

- 3.1 Refer to wiring diagram *fig 1*.
- 3.2 The cable entry is positioned on the side of the terminal box.
- 3.3 Before connection ensure that the supply corresponds with that specified on the rating label.
- 3.4 Ensure that the sizes and types of cables to be used are suitably rated for the load and temperature of the unit.
- 3.5 Each heater must be protected by a suitably rated over current device and earth leakage circuit breaker device. See section 4 below for earthing details.
- 3.6 The cables must enter the heater terminal box via ATEX certified Ex d IIC cable glands (not supplied) and be fitted by a qualified person. Any unused entries should remain plugged with the factory fitted certified Ex d plugs.
- 3.7 The cover of the terminal box is removed after releasing the 3 socket head screws in the cover. When re-fitting ensure that the 'o' ring seal is in good condition and correctly located. The main cover mating and spigot faces **MUST** be kept clean and free from any debris at all times.
- 3.8 After re-fitting, the gap between the cover and the body must be checked to ensure that it does not exceed 0.15mm.

- 3.9 The installer or end user must connect to the Exheat supplied terminals within the terminal box - **DO NOT** connect to or disturb factory fitted wiring.

4.0 EARTH CONNECTION

4.1 WARNING – these heaters MUST BE EARTHED.

- 4.2 The external earth connection is located adjacent to one of the terminal box cable entries.

- 4.3 An internal earth connection is provided inside the terminal box.

5.0 OPERATION

- 5.1 Heat is generated by means of electric heating elements.

- 5.2 An adjustable control knob is provided on the terminal box sensing ambient air temperature. Rotate clockwise to increase the desired set-point or anti-clockwise to reduce the set-point.

- 5.2 Temperature control of the radiator is limited by a built-in preset thermostatic cut-out (auto-reset type).

- 5.3 Over-temperature control of the radiator is facilitated by a built-in preset thermostatic cut-out (manual-reset type). Upon over-temperature, the terminal box cover will have to be removed to enable a reset to be carried out. The unit should not be reset until the cause is found and action has been carried out to prevent re-occurrence.

- 5.4 **CAUTION** – under no circumstances must the heater be energised following leakage of any fluid from within the radiator.

6.0 MAINTENANCE

- 6.1 All prevailing site safety regulations shall be adhered to at all times.

- 6.2 Equipment shall be checked regularly for any dust accumulation which must be removed from all surfaces.

- 6.3 Before and whilst any maintenance activity is carried out, it must be ensured that there are no hazardous gases or dusts present.

- 6.4 Equipment is to be fully isolated from the electrical supply before and whilst any work is being carried out.

- 6.5 Any damage or faults should be notified to Exheat Limited immediately.

- 6.6 Any replacement parts required must be obtained directly from Exheat. The use of any other parts will void any certification and warranty.

- 6.7 Equipment is certified for use in a hazardous area and reference should be made to EN60079-17 (especially table 1) & IEC 1241-1-2 in addition to the following recommendations.

6.7.1 3 Monthly

- a. Generally inspect the equipment for external damage or leaks.

6.7.2 6 Monthly

- a. Isolate the electrical supply and remove the cover (refer to 3.7 above)
- b. Internals should be clean and dry.
- c. Ensure terminals are intact and secure.
- d. Heating element insulation resistance to be at least 2 megohm.
- e. Refit cover with new gasket or 'o' ring if required (refer to 6.6 above) and re-tighten using only the socket head screws provided.
- f. Check the flamepath gap as 3.8 above.
- g. Earth continuity must be maintained between all earth points and main structure.

6.7.3 Annually

- a. Carry out 3 monthly and 6 monthly checks as above.
 - b. Check for element failure or low insulation resistance.
- 6.8 Only Exheat Ltd or its approved agent to carry out rod type element replacement in hazardous area heaters otherwise the certification will be invalidated.
- 6.9 If equipment is being left unused for a period greater than 3 months, carry out 6 monthly maintenance before energizing.
- 6.10 If for any reason the heater element assembly has to be removed from the radiator, the following re-filling procedure should be followed, prior to energizing.
- a. Empty the liquid content of the radiator and discard. (Care should be taken to ensure that disposal of this liquid complies with prevailing environmental laws).
 - b. With heater fitted, and filler connection plug removed, add one litre of glycol-based anti-freeze to each kilowatt of power produced by heater (The kilowatt rating of the unit can be found on the terminal box lid).
 - c. With the radiator positioned horizontally, re-fill the radiator with water to a level just below the height of the filler connection.
 - d. Replace and tighten the filler connection plug.
 - e. Check for leaks and follow installation instructions in section 2.

7.0 Marking

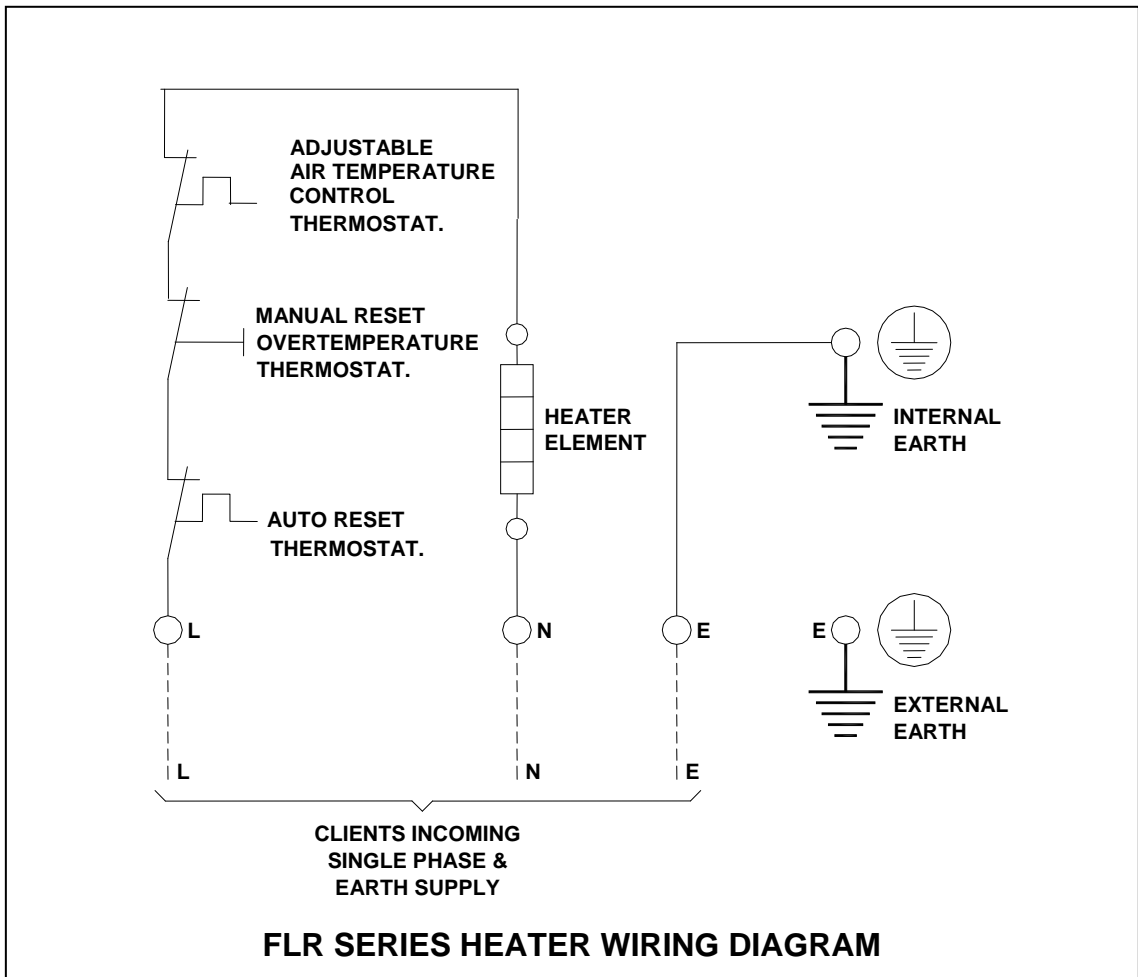
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Ex d IIC T6 Ex tD A21 IP6X T85°C

8.0 Certification

8.1 LCIE 00 ATEX 6012 X

Fig 1.



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