



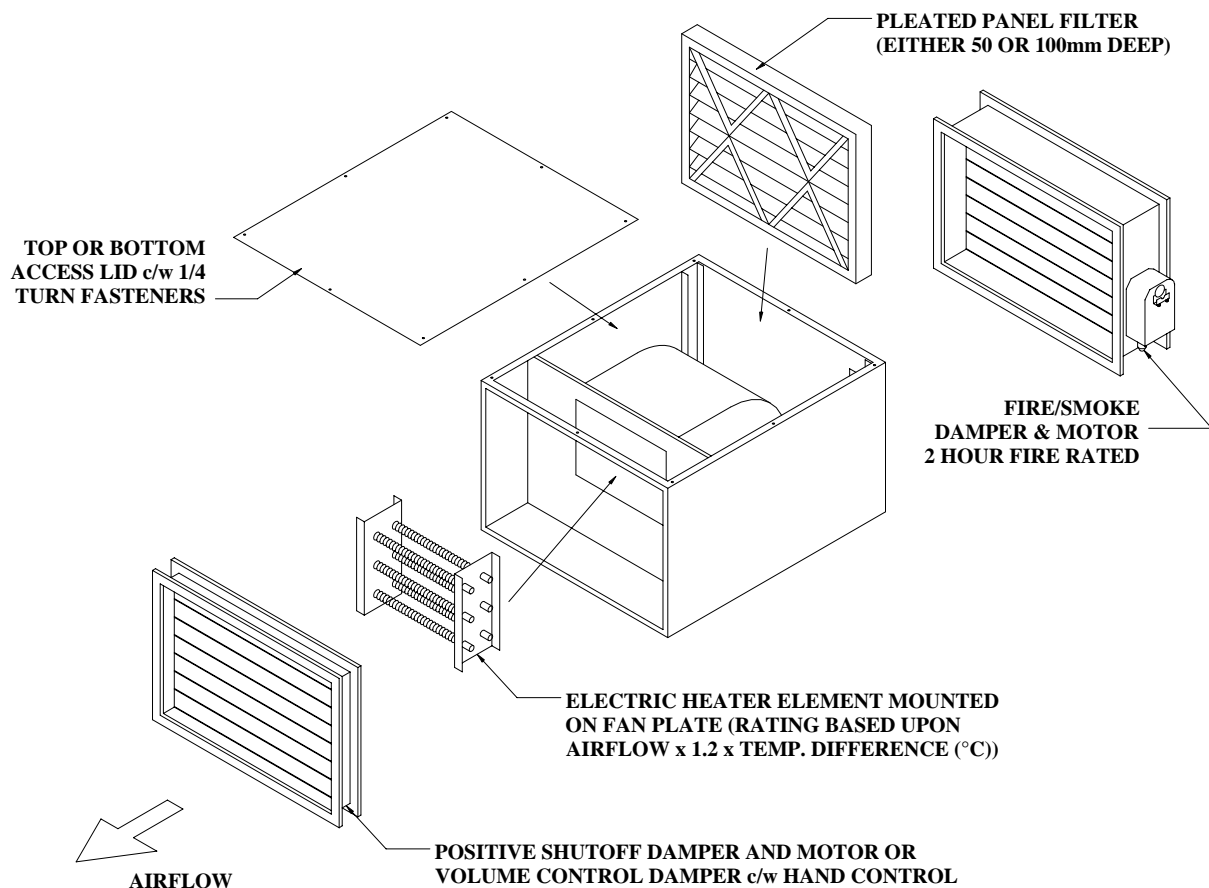
OPERATING AND MAINTENANCE INSTRUCTIONS

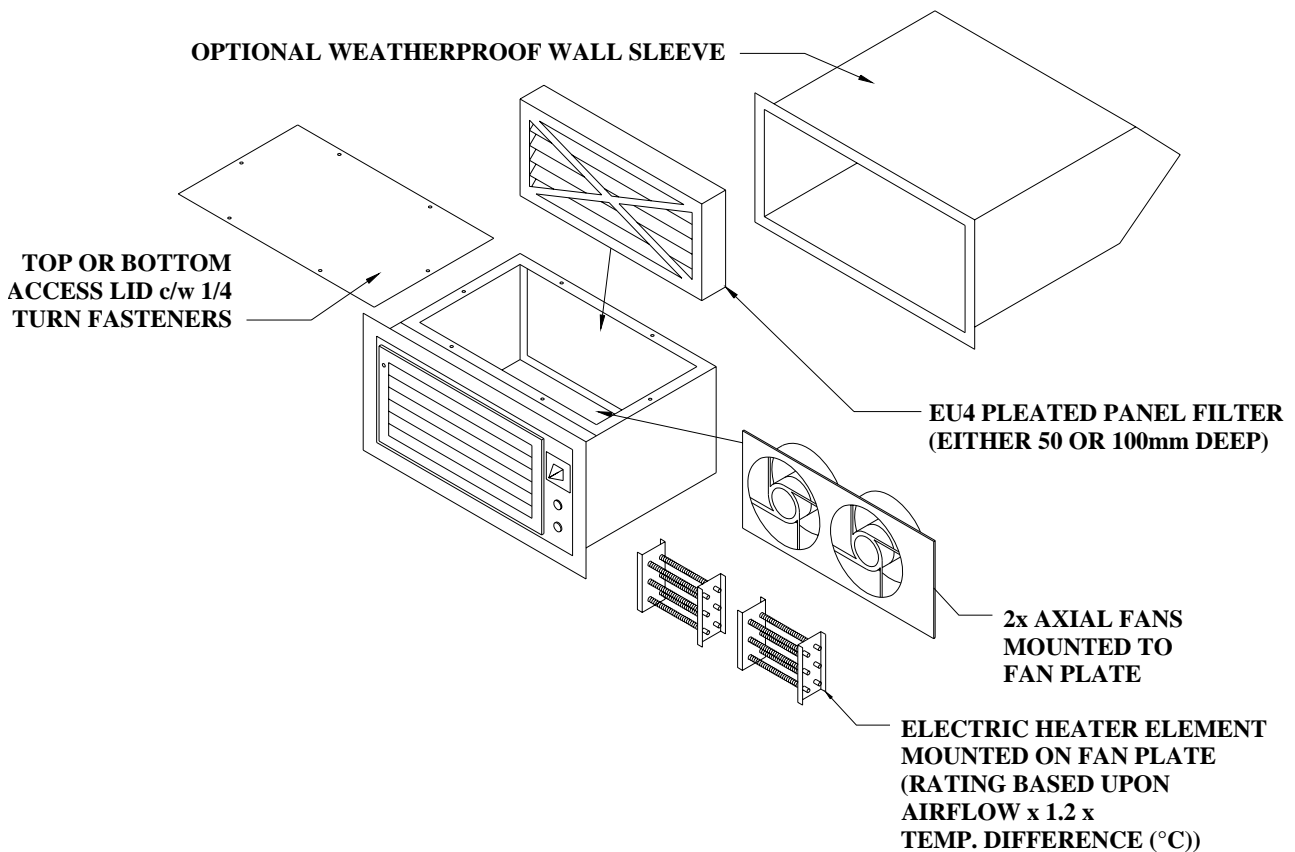
FRESH AIR UNIT - MODEL 'S' & 'Q'

DESCRIPTION

All Puma Units are manufactured to a very high standard of construction. The Fresh Air Unit is fitted with a high efficient, single phase, axial flow fan. A heater battery of the correct size is fitted if required. An adjustable on/off thermostat controls this. A panel filter with an arrestance of 86% against Eurovent 4/5 BS 6540 and ASHRAE 52/76 G3 is fitted as standard but High Efficiency Filters with an efficiency of 80% at 0.5 microns t.d. no 1 BS 2831 F7 may be fitted if specified and where possible. The Fresh Air Unit is insulated with black thermal insulation 3mm thick for anti-condensation purposes.

Model 'S' Mk 3



Model 'Q' Unit

The casing internal sections and lid are formed using 18 SWG mild steel plate. The units are then finished in an attractive satin black polyester Powder-coat paint. On Model 'S' units both ends of the units are internally flanged and fitted with M4 nutserts as standard. These are for connection to a suitable duct or the optional PUMA Telescopic Wall Sleeve and Duct and external Weather Louvre. (See appropriate certified drawing).

Puma Fresh Air Units fitted with Fire / Smoke Dampers (FSD) are situated on the air intake side. The damper should be located as close as possible to the wall cut-out. This will then ensure the fire integrity of the wall is maintained. The Fire Rating of the Fire / Smoke Damper is 2 hours tested to BS 476 Part 8 & 23.

Puma Fresh Air Units fitted with Positive Shutoff Dampers (PSD) are situated on the air discharge side. This slim-line type damper incorporates low leakage blades with PVC seals to provide an effective seal in the room or ducted system. Note that this damper is not fire rated.

Ducted Units are available with Silencers for intake and discharge sections. These are formed from 18 SWG Mild Steel Plate and 20 SWG 30% free area Perforated Plates, all Powdercoated to match the Unit. Sound absorption material is Rockwool Slab to a density of 60Kg/cm³, Tissue faced to eliminate Fibre shedding.

OPERATION

The Fresh Air section requires a 230 V ac single phase supply. This supply will normally be interlocked with the air-conditioning system in relation to power shutdown in the event of fire

detection. A suitably sized 3 core cable of 1.5 metres in length is supplied through a cable grommet in the side of the casing.

This cable is connected through the fitted mains isolator, the supply to the fan and heater (via the thermostat) is from this isolator.

Electric Heaters

All heater batteries are fitted with an Element Over-heat Protection Circuit (EOPC). The circuit incorporates an Element Overheat Switch (manual reset) & Airflow switch together with an appropriate Relay or Contactor, when low or no airflow occurs the coil of the Relay/Contactor is de-energised. The overheat switch provides protection against the heater elements overheating in the event of fan/Airflow Switch failure. The Airflow switch also provides volt free contacts via a Relay (AFR) wired to a 3 core cable marked common, normally open, normally closed. This 'volt free' device is rated at 240 V ac 5 amps.

All Puma units with heating will include Heater Fuses, Heater Relays or Contactor and Element Overheat Thermostat. There are three options for heating controls:

Integral Thermostats – One thermostat is supplied for each stage of heating required. These are located inside fan unit sensing air intake temperature. Each Thermostat switches up to 4kW per stage. Adjustable 0-30° C dial, factory set at 5° C steps per thermostat. Switching differential + or - 2° C.

Speed Controllers

Speed Controllers can be fitted to most single phase fans for commissioning purposes. It is generally accepted that great care must be taken when reducing airflow when electronic heater batteries are fitted.

A sufficient amount of air should pass across the elements to prevent overheating. This is normally 30 to 40% of maximum fan speed. Safety is provided by the Airflow Failure Switch (A.F.S.) which will drop out the Heating Relay (H.R.) when the airflow is too low. The element overheat thermostat will act as a fail safe.

Speed Controllers are generally single phase internal mounting type, located on individual fan casings. Remote wall mounting types are available on request.

When Internal Fan Speed Controllers are supplied loose or as a retrofit please refer to data sheet OSI 002 which gives details of On Site Installation.

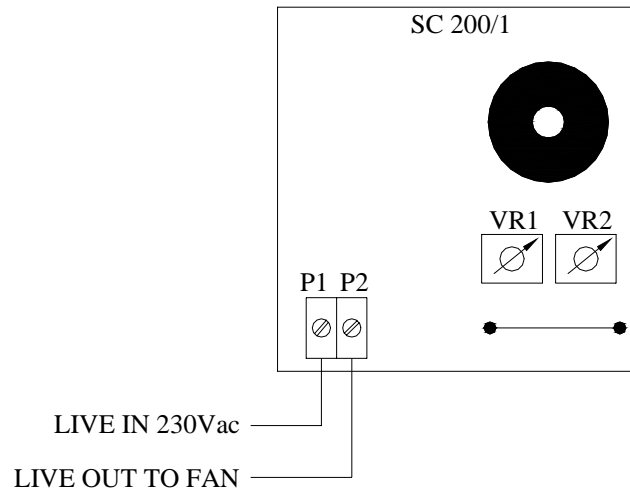
Factory fitted devices are normally located on the Fan Casing, the device is approximately 75mm square with two distinct adjustable potentiometers visible (see drawing).

VR1 – Minimum speed set.

This potentiometer is used to determine the lowest speed setting for VR2.

VR2 – Running speed adjust.

This potentiometer is used to adjust the running Speed of the Fan motor.



Warning: Care must be taken when adjusting Fan Speed as this device is live 240Vac when the unit is running.

Adjustments to the speed of the Fan motor are achieved by turning potentiometers VR1 & VR2. Clockwise for maximum, Anti-clockwise for minimum.

Setting VR1 will determine the speed range for VR2, care must be taken not to set VR1 too low otherwise this may cause the Fan motor to stall on start up.

Considerations for Heating must also be given when setting the minimum speed potentiometer (VR1). Sufficient Airflow across the elements must be maintained to prevent the Element from overheating.

If component failure occurs or there is no voltage at output (P2), Isolate at source, remove Speed Controller and return to Puma Products Limited, use warranty procedure.

Damper and Motor

When a Damper and Motor is fitted to the Puma Unit, the damper motor is wired lieu with the fan controls and proceeds to open when power is supplied to the Fan Unit. The motor takes approximately 40-75 seconds to fully open and will then 'Spring Return' on power failure at approximately 20 seconds.

INSTALLATION

Model 'S' units must be situated in a position with sufficient access to the top of the unit. A height of at least 150mm clear above the unit must be allowed as access to all units components are via the flat plate lid. The clearance height is not necessary when the units are located underneath raised modular floors, as it is assumed that the appropriate floor tile/s are accessible and removable.

Model 'Q' units when located in weather proof wall sleeves must be sealed with suitable mastic externally and general installation must comply with any relevant building regulations.

The mains supply cable must be loosely clipped to the wall to allow sufficient slack in cable to enable the unit to be withdrawn from the sleeve for filter removal. The mains supply to all units must be disconnected at source before removing lid. The unit may be suspended or supported by correctly sized anti-vibration isolators if required (supplied by others).

COMMISSIONING

Assuming all necessary power supplies fuses and inter-connecting cable has been installed to the standard of the current edition of the iee regulations, then commissioning/start up of the unit is relatively straight forward.

Switch isolator to on (marked 1) position. The Fresh Air fan will run continuously. The integral thermostat is factory set to sense incoming air and to switch the heater on when the ambient temperature is 10 ° c. The thermostat is adjustable from 0-30 ° c and may be altered by qualified personnel if required. If two or more thermostats are fitted they will be set in steps of 5 ° c.

SERVICE & MAINTENANCE

The main panel filter in the Fresh Air section must be replaced as frequently as is necessary depending on ambient conditions. This should coincide with a three monthly visit for a standard service for the main air-conditioning plant or if manometers are fitted, when the pressure difference exceed 0.3" wg (75 pascals). Failure to change the filter/s at the recommended intervals will invalidate the warranty.

The pre filter can be vacuumed and washed if necessary in warm soapy water whenever the build up of large particles (i.e. leaves etc), obstruct the air path. The airflow failure switch should be checked for free movement and electrical conductance.

Refer to puma technical sales leaflet for further information regarding dimensions, weights and unit performance and fan curves.

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