Commissioning Constant Pressure Systems

with 12/230V Surface Mounted Grilles

Users Guide

Addendum to I&M documents 671153, 671154, 671172, 671170 and 671171.

Description

An arrangement of branched ductwork connected to a Nuaire constant pressure fan. For each inlet to the system there will be a surface mounted model NRG dual volume flow rate grille. (see figure 2).

This document is intended for guidance purposes only, it does not relieve the commissioning engineer of his responsibilities to commission the system according to good custom and practice.

Figure 1. General illustration of a typical system.

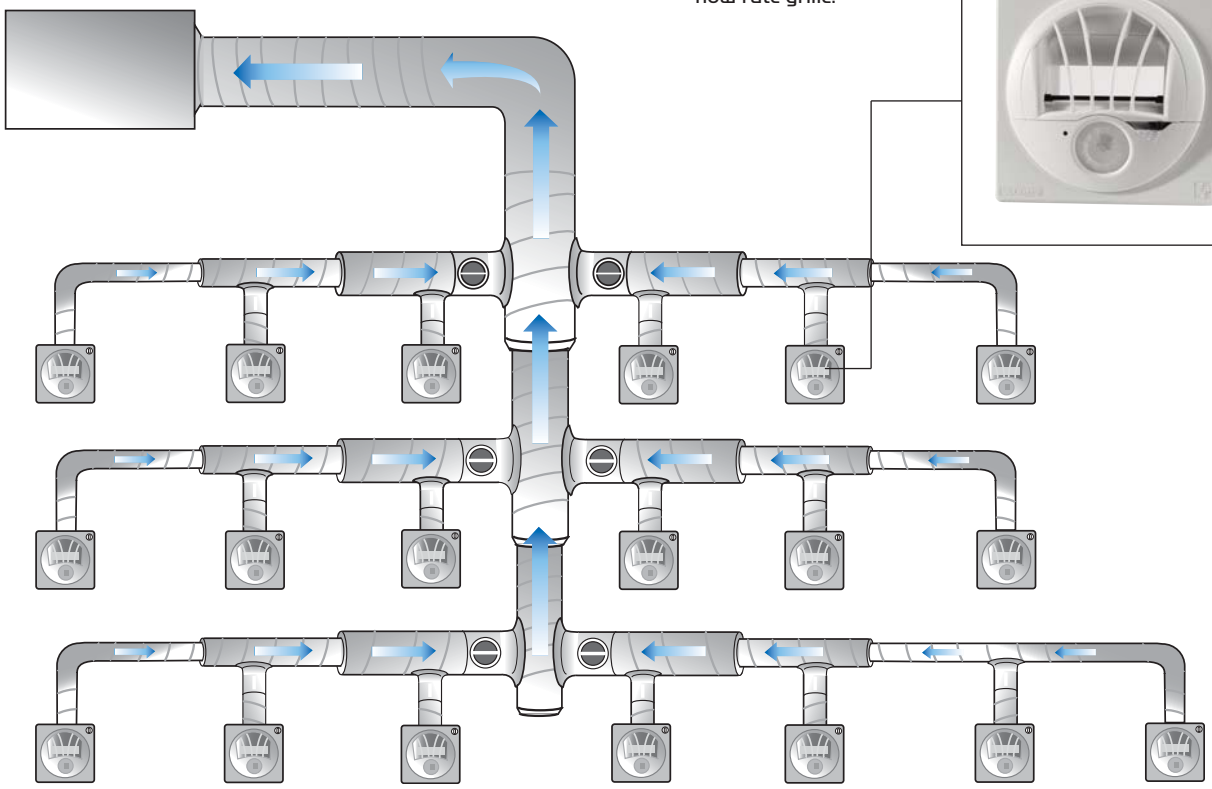

Figure 2. NRG dual volume flow rate grille.

The fan

- is specific to the system and will have been selected against quoted design criteria – Total system volume against total system resistance.
- Incorporates an integral speed control and pressure sensor.
- Will automatically adjust its own speed of operation to maintain a 'target pressure' which corresponds to the desired ventilation system performance.

Figure 3. Documentation on relevant fans.

Doc No.	Fan Type
671153	Commissioning data for direct drive indoor units
671154	Commissioning data for direct drive outdoor units
671172	Belt drive roof fans
671170	Direct drive indoor fans
671171	Direct drive outdoor fans
671279	NRG dampers

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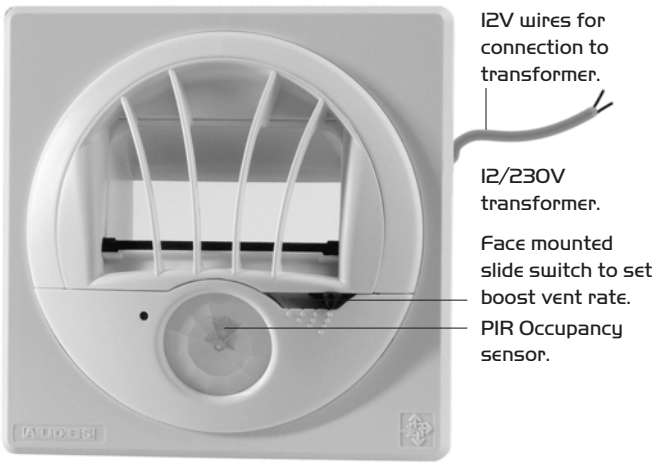
Figure 4. NRG dual volume flow rate grille.



The NRG dual volume flow rate grille

- The NRG is a surface mounted device for installation in the area served.
- The NRG is supplied complete with 12/230V transformer for installation and connection outside the splash zone.
- Integral to The NRG is a Passive Infra-Red sensor PIR, upon sensing movement this PIR triggers the damper to its open position. The damper will revert to its 'closed' position approximately ten minutes after the last occupant has been detected.
- The achievable flow rates are detailed in the I&M document 671279.
- Flow rate in the boost (open) position is settable by a slider switch at the front of the unit.
- The flow rate in the trickle (closed) position is pre-set and not adjustable.

System commissioning

To commission a system the following information is required:

- Flow rate at each inlet grille.
- Static pressure for the inlet system, this must not exceed 100Pa.
- The static pressure across the damper, this is twice the inlet pressure.
- The system target pressure.

Calculate the system target pressure by adding together the inlet system pressure and the damper static pressure.

Proceed to commission:

- Remove the NRGs from the end of the ducts and, using normal commissioning techniques, check the duct system integrity and proportionally balance the system against the system flow rate specifications.
- Refit the NRG grille and set the appropriate boost ventilation rate by adjusting the face mounted slider switch.
- Measuring static pressure at the ducting just before the fan casing, adjust the "Set Target Pressure" potentiometer at the fan control box until the specified static pressure is achieved.
  (Note that the fan speed change response/settling time may be up to 30 seconds).
- Check that the NRG dampers open and close by activating the PIRs.
- Perform a random sample (or 100% check if appropriate) of flow measurement at the extract grilles. Adjust flow rate either at the 'set target pressure' pot and/or at the face mounted slide switch.
- De-activate all dampers and check that the measured static pressure is maintained at the target level.

Figure 5. Fan side commissioning box.