

General Data

Duty:	1.32 m ³ /s @ 80Pa external to unit
Air volume adjustment:	From keypad, to suit actual volume required for system
Casework:	Double skin except rear panel (Pyrosorb lined). Outer skin plastic pre-coated steel, except rear and bottom panels. Inner skin, rear and bottom panels galvanised
Casework Dimensions:	1256 wide x 450 deep x 1300 high
Hinges:	As on BTR range, riveted
Locks:	As on BTR range, 5mm DIN key
Supports:	External matching angles, supplied loose, for site fitting to either side or to top of casework
Fans:	Half-scroll backward curved impellers with EC motors
Controls:	Trend IQ3xact, fully web-enabled
Control panel:	Internally enclosed from air-stream
Filters:	496 x 496 x 97mm thick, G4 panels

Free Blow Plenum/Adaptors

The standard adaptor on the larger unit with two fans will be 1200 x 300mm, fitted with an eyelash grille arranged to blow two ways, as specified by BT. As the fans both run together during normal operation, the adaptor and grille are not divided. Other grille types are available to special order.

Options

Internal Units

Discharge

Ducted:	Top discharge. (An NRF assembly is also available, as shown above, for multiple units' installation in a common duct system.)
Free blow:	Plenum/Adaptor on top of unit using top discharge openings. No NRFs (common airpath for both fans, as they are controlled together). Adaptor with 1200 x 300mm two way eyelash grille fitted.

Inlet

Location:	Rear or bottom inlet as shown (can changed by adaptor plate re-positioning, but should be stated at time of order to save site installation time)
Plinths:	Standard Pyrosorb lined plinths available

SDU Keypad and accessories

The unit is fitted with a Trend SDU display, RJ45 connector and Prompt and Deferred alarm lamps, all mounted on the front of internal units on the left hand door. At least one, and up to two, room sensors can be wired on site from controller terminals using 2-core screened cable, (Belden 8671) and located at remote positions as required in the room. They are designed for installation on a standard pattress or may be directly surface mounted. There is no sensor mounted on the unit itself.

External Units

Casework:	Fitted as standard with a rain drip strip across the top of the doors
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Discharge

Ducted:	Top discharge. (An NRF assembly is also available, as shown above, for multiple units' connection to a common duct system.)
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Inlet

Location:	Rear or bottom inlet as shown (by adaptor plate repositioning: however, we anticipate that all external units will be bottom inlet) with security grille for opening used supplied as standard. Inlets may also be ducted by others for additional attenuation etc.
Plinths/stands/ductwork:	To suit application, support, and any sound reduction measures required, <u>by others.</u>

SDU Keypad and accessories

These will always be supplied loose on external units for mounting on a flush or surface pattress by others. The SDU and up to two room sensors to be wired on site as above using supplied communications cable and 2-core screened cable (Belden 8671) respectively. The alarm lamps will be door mounted, as on the internal unit. An RJ45 connection for a laptop or networking can be made direct to the controller socket using a Crossover Cat5 cable. Interconnecting cable for the SDU will be supplied in 3m length as standard, but can, to special order, be supplied to run up to a distance of 30m.

Attenuation

Additional attenuation is obtainable by ducting the inlet to attenuator(s) to suit individual applications, all by others.

Software and Control

Fan Control

The unit uses the EC fan motor speed adjustment capability in much the same way as on the large fresh air units, running the fan from 20% of the fans' maximum speed when the room temperature is at 18 degC to 100% (the correct air volume as set on site) at 33 degC. The fans will not run above the set volume or below 20% at any time.

A Mode switch on the display with Mode A (fans continuous down to 20% at or below 18 deg C) and Mode B (fans off until the room temperature reaches 18 deg C) is included, with Mode B as default. At 18 deg C (rising) in Mode B, the fans will start at 20% of maximum speed. At higher temperatures, the unit will operate as in Mode A. In either fan Mode A or B, on restart after shut-down or power failure, or after a maintenance test, the fans will restart at 20% of maximum speed regardless of temperature and then ramp up to the control speed. The user adjustments for the fans in normal modes will be Low Speed/Mode B fans on set-point (default 18 deg C), High Speed set-point (33 deg C), and fans' speed (%) for duty adjustment to give 100% air volume required. This is all as on the current large WFA units' software.

Controlling the fans together in this way, rather than staging them individually on/off as on the former WFA1.3N, (and, incidentally, as is currently still practiced by E-W, albeit with EC fans) gives considerable power savings at reduced speeds. For example, if the air volume required reduces to 50%, the other units revert to single fan operation that would clearly be drawing at least 50% power. This unit's fans at 50% volume will only draw 12½% power.

Maintenance test procedure

For the maintenance test procedure, which is operated by a keypad switch, a low derived room air temperature value will be superimposed on the fans control so that they slow down in Mode A or stop in Mode B. After a delay, the fans will run at minimum (20%) speed and then ramp up to the preset duty speed. Following the test, if in Mode A, the fans will restart at 20% of maximum speed regardless of temperature and then ramp up to the control speed. In Mode B, the same will occur, provided that the room temperature is sufficiently high for the fans to be called. As there is no damper, this unit does NOT run an automatic monthly routine Autotest, as on the large WFAs and DX units.

Other Control functions

Fans speed as a percentage of the duty, return air temperature, alarm conditions, maintenance test countdown and fans hours run will all be visible from the SDU display.

Fans control temperature set-points, Mode A or B (with differential) and fans maximum speed (correct air volume) will be adjustable from the SDU display.

A common fan speed override with high level PIN access and automatic override timeout is included as a commissioning aid.

Random start timer with adjustment will be included (not specified, but at BT's request).

Common alarm reset is from Switch 7 as on all other BT products with the current Trend controllers.

A heating system interlock is not specified, but will be included in software, should a relay ever be required as an optional extra.

Power Fail alarms will come from a relay wired across the 24V secondary output from the transformer. This will provide indication of power loss from both incoming mains and failure of the transformer itself.

Room temperature >38 deg C is to be recorded with a 5 minute default log time.

(All sensors log at both 5min and 30 min intervals over 1000 events.)

Room High Temperature Alarm is at 45 deg C resetting at 40 degC.

Room Low Temperature Alarm is at 8 deg C resetting at 10 degC.

Temperature sensor failure on either of the room sensors will appear as an alarm. Control will continue from the remaining sensor. If only one sensor fitted, fans to run at 20% speed if in Mode A, or stop if in Mode B.

Fans run hours will be recorded. The controller will record run times at selected ranges of fan speeds as well. It will also record hourly maximum, minimum and average temperatures and weekly and monthly average temperatures. All much as we do on our large fresh air units.

Each fan will have motor overload/EC board fault inputs. The unit will continue to run with one fan, should the other fail.

Inputs

Type/No	Input	Type
Sensor S 1	Room Temperature 1	Thermistor
Sensor S 2	Room Temperature 2	Thermistor
Input I 1	Main Fan 1 O/L (or internal fault)	Digital
Input I 2	Main Fan 2 O/L (or internal fault)	Digital
Input I 3	Filter Blocked	Digital
Input I 4	Fire Shutdown	Digital