World leaders *in airflow controls and monitors*

Complete Environment Control

About TEL
A reputation for innovation

Established in 1969, Temperature Electronics Ltd (TEL) is a world-leading airflow control and monitor manufacturer and consultant. Our innovative products are used to improve safety, reduce costs and save energy in thousands of laboratories and industrial environments around the world.

In 2016, TEL launched the AFA5000 Laboratory Room Space Controller. The first controller to communicate directly with fume cupboards, it offers laboratory managers complete control of research environments.

Partner with TEL and benefit from:

- A safer, more comfortable environment for lab users
- Reduced energy usage – up to 85%
- Reduced energy costs
- A smaller carbon footprint
- Full compliance with health and safety legislation

Discover a better way of working, call ***TEL on +44 (0) 1457 865 635.***

Global Reach

There are more than 300,000 TEL monitors and controls in laboratories across the world.

International supplier network

With a network of suppliers that stretches across America, Africa, Asia and Europe, TEL products are available anywhere in the world. For an up-to-date list of our global supply partners go to www.tel-uk.com/distributors.

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TEL Americas

In 2016, TEL launched TEL-Americas and it has fast become the number one supplier of air flow control equipment in America. A member of the ECM Holding Group, it specialises in the development, supply, installation, testing and verification of energy efficient variable air volume (VAV) systems. For more information go to www.TEL-Americas.com.

Complete
Laboratory Control

TEL works in close partnership with laboratory companies, fume cupboard manufacturers, contractors and users around the world. We develop air flow monitors and controls in direct response to the pressures they face to improve safety, reduce costs and deliver energy efficiency.

Our extensive range and unrivalled expertise also means we achieve significant economies of scale which is reflected in our prices.

Partner with TEL for:

- An extensive product range
- World leading product innovation
- Unrivalled expertise
- Worldwide technical support, 24/7
- Outstanding after sales service

Our clients include:

- Laboratory / Facilities Managers
- M&E Contractors
- Energy Managers
- Carbon Reduction Managers
- Sustainability Managers
- OEMs

Flameproof Systems

TEL can provide Airflow Monitors and Airflow Controls suitable for Zone 1 and Zone 2 hazardous or flameproof areas, Gas group IIC, Temperature class T6.

For installations where the hazardous area is contained within the fume cupboard chamber: the standard airflow monitor or controller can be used with certified zener barriers fitted to the airflow sensor.

For installations where any part of the laboratory is classified as the hazardous area: the airflow monitors or controls are mounted in a safe area control panel fitted in a designated safe area with remote Ex rated indicators and alarms fitted to the fume cupboard.

TEL
Products

TEL designs and manufactures an extensive range of laboratory control products including:

- Airflow Controls (VAV)
- Volumetric Controls
- Laboratory Room Space Controller
- Auto Sash Controllers
- Airflow Monitors (CAV)
- LEV Monitors
- Kitchen Hood Controls

*Full details of all TEL products can be found on pages **12** to **37.***

TEL Services

TEL offers a full design and consultation service including design consultation, product supply and installation, training and technical support.

New installations: depending on the requirements of your specific project we will collaborate with laboratory designers and planners from initial concepts through to installation and commissioning. Alternatively we can participate ex-works.

Retrofit service: we can retrofit our products to virtually any existing fume cupboard system. This unique service includes feasibility study for existing plant (including usage and efficiency), energy calculation giving current costs and potential savings, proposal (including costing and methodology), and installation and commissioning service.

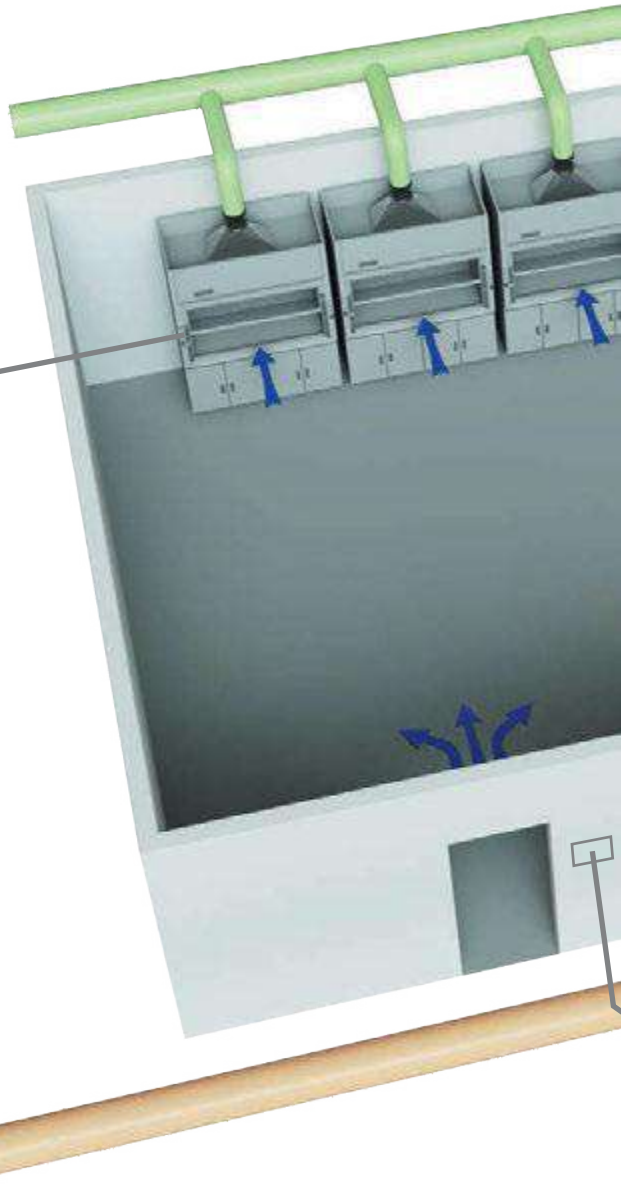
Econ
VAV CONTROLS

VAV controls for fume cupboards are designed specifically to reduce the energy usage and costs associated with running a laboratory, consequently shrinking its carbon footprint.

Constant air volume (CAV) fume cupboards consume a constant volume of air regardless of sash position. The energy spent heating and cooling the supply of this air for the comfort of lab users represents a major operating cost.

TEL's VAV system for fume cupboards works by measuring the face velocity on the fume cupboard and providing a controlled output to maintain the set point face velocity as the sash is opened or closed.

Fitting TEL's VAV controls system to your fume cupboards and air supply system can typically ***reduce your energy costs by up to 85%.***

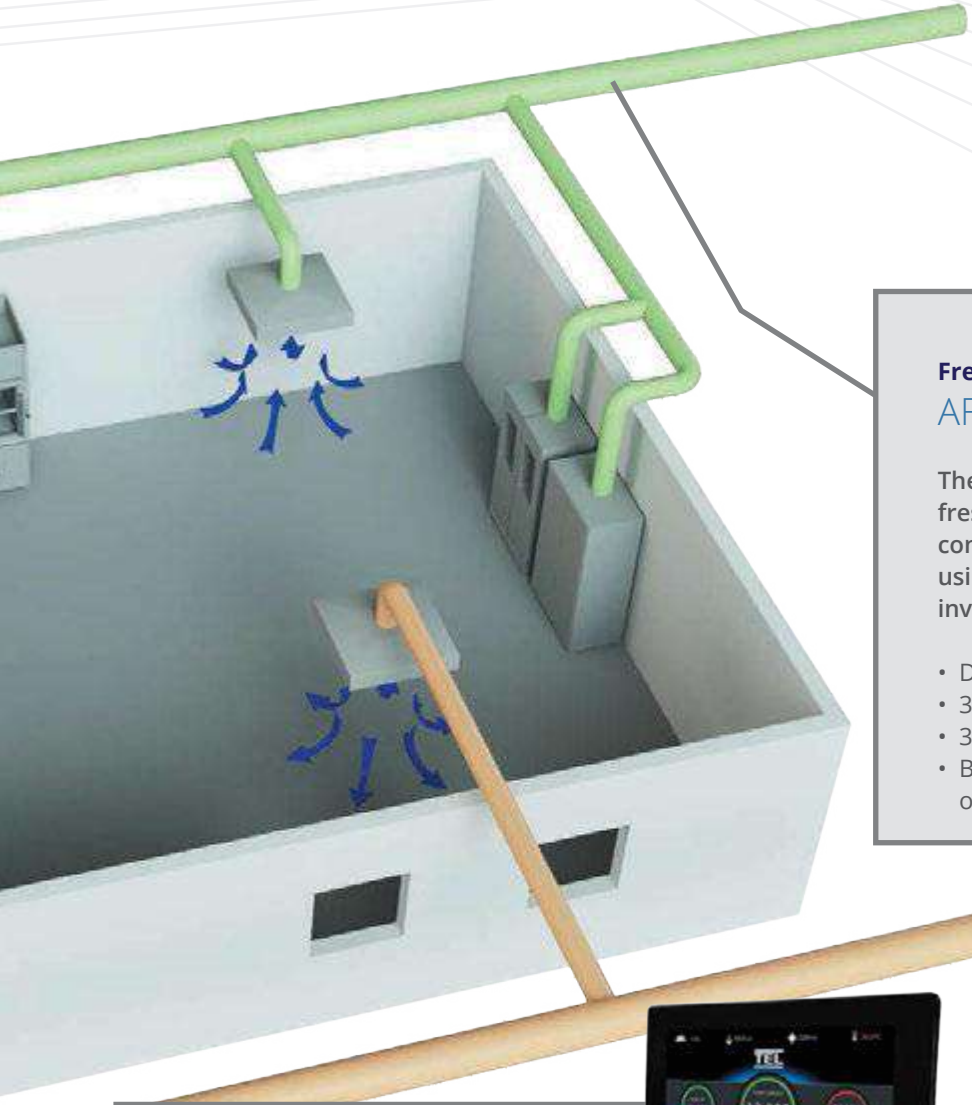


VAV Controller

AFA1000/E

The AFA1000/E is a digital airflow VAV controller available with a range of remote unique airflow sensors to measure face velocities or duct velocities. Available fully flush (MK2) or semi flush (MK3).

- Programmable push buttons
- Bacnet and Modbus on board
- Audible alarm with red, amber and green LEDs
- 3 relay inputs and 3 relay outputs



Fresh Air Bleed Controller

AFA1000/BLD

The AFA1000/BLD is a wall mounted fresh air bleed controller suitable for controlling the VAV system duct pressure using a fresh air bleed damper or fan inverter drive.

- Digital Display
- 3 Relay Inputs
- 3 Relay Outputs
- Bacnet and Modbus on board

Laboratory Room Space Controller

AFA5000

The AFA5000 Laboratory Room Space Controller can be configured to operate the room space ventilation based on differential room pressure, air quality control, volumetric control or any combination of the control philosophies.

- 7" HMI touchscreen, wall or panel mountable
- Time scheduling with setback/out of hours control
- Over diversity status/alarms
- RS485 connection to AFA1000 controllers

***Our VAV controls can be fitted to** new fume cupboards or retro-fitted to virtually all types of existing fume cupboards.*

Environmental
CONTROLS

The AFA5000 can be used to reduce energy consumption and maintain air quality and comfort levels in any type of room space with mechanical ventilation.

It offers demand-control ventilation, allowing users easy control of a mechanical HVAC ventilation system for a space comprising up to 64 fume cupboards per room, without the need for a building management system (BMS).

It ensures that the air within the space maintains its optimum quantity and quality, both in terms of the safety and comfort of users and the function of the facility. By precluding the need for a BMS, the AFA5000 enables users to control the air within their facility more efficiently and reliably.

Laboratory Room Space Controller

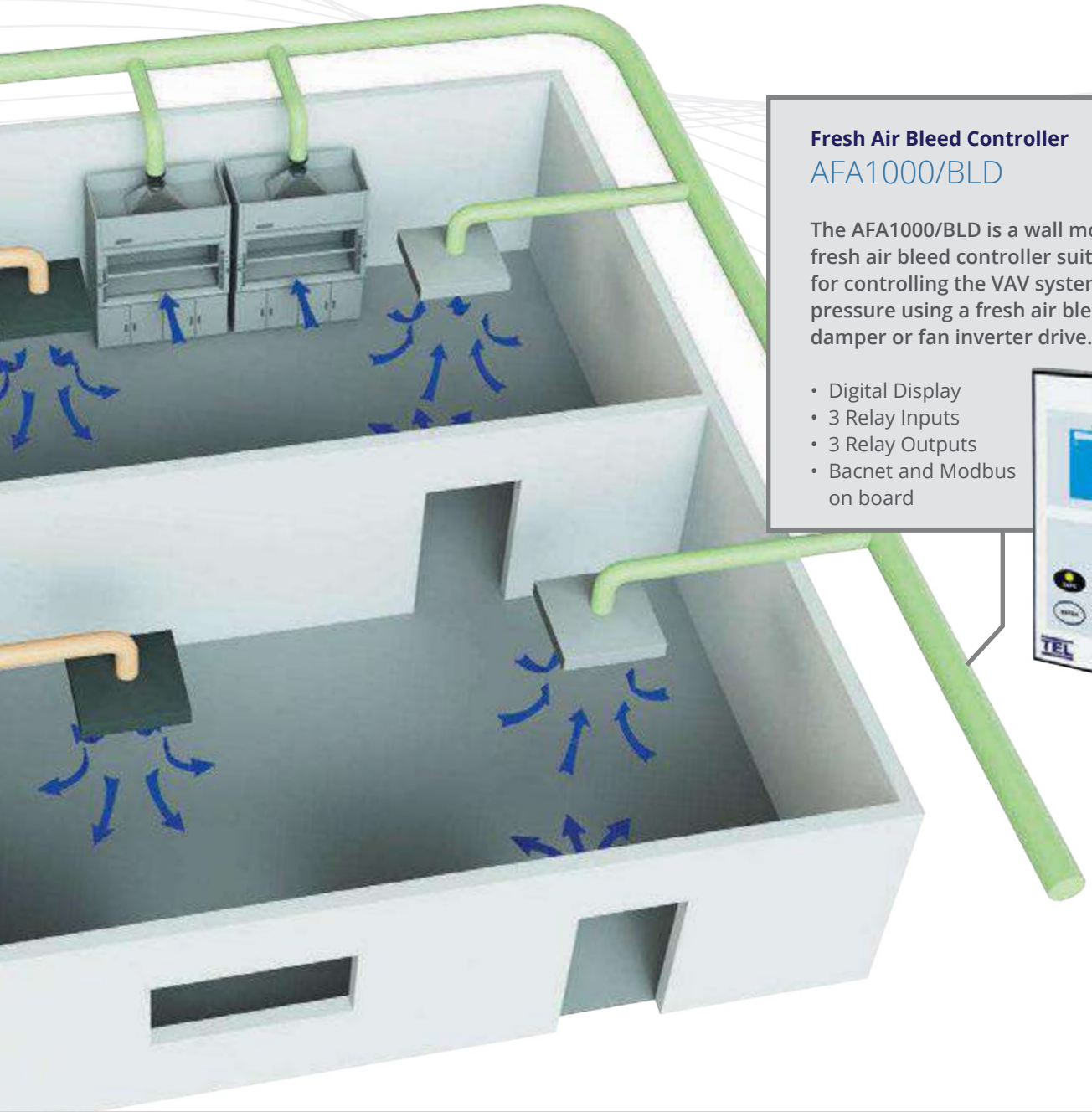
AFA5000

The AFA5000 Laboratory Room Space Controller can be configured to operate the room space ventilation based on differential room pressure, air quality control, volumetric control or any combination of the control philosophies.

- 7" HMI touchscreen, wall or panel mountable
- Time scheduling with setback/out of hours control
- Over diversity status/alarms
- RS485 connection to AFA1000 controllers

Laboratories

The AFA5000 is ideally suited to laboratory VAV applications where air volumes vary whilst room conditions need to be maintained. The controller can connect to the fume cupboards, room supply and room exhaust to maintain volumetric or room pressure requirements and control the temperature, humidity, CO2 and VOC levels. Occupancy and Setback operation can also be configured using on board time clock or external BMS connections.



Fresh Air Bleed Controller

AFA1000/BLD

The AFA1000/BLD is a wall mounted fresh air bleed controller suitable for controlling the VAV system duct pressure using a fresh air bleed damper or fan inverter drive.

- Digital Display
- 3 Relay Inputs
- 3 Relay Outputs
- Bacnet and Modbus on board

Clean Rooms

The AFA5000 can operate on pressure set point control to maintain a pressure cascade whilst also monitoring or controlling the environmental conditions, performance graphs and alarm logging which provides local indication of the room conditions over a set period.

Office / Write up Areas

The AFA5000 can be used to control cooling and heating requirements in rooms where the ventilation is constant but the room conditions vary, the controller can operate with up to 3 control set points for occupied, unoccupied and set back conditions. Humidity and CO2 levels can also be monitored and controlled.

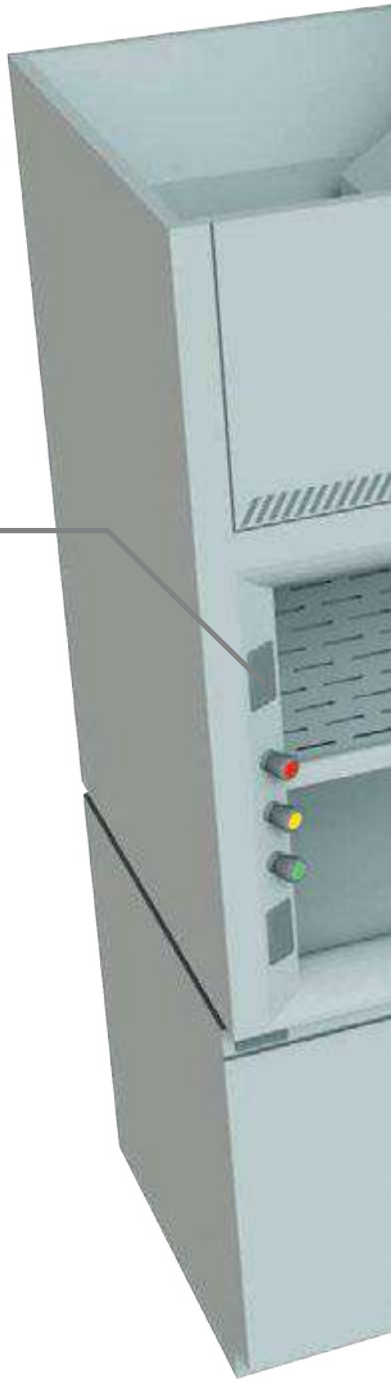
Fume cupboard
CONTROL SYSTEM

A fume cupboard is the most widely used exhaust equipment for chemical laboratories. Proper fume cupboard face velocity control impacts overall lab air control significantly. TEL's fume cupboard control systems are designed to consistently maintain the required safe face velocity at any sash position.

Damper Actuator

TEL provides a fast acting 4Nm actuator for adjusting dampers in laboratory installations.

- Fast acting
- Modulating damper actuator
- Five year warranty



Auto Sash Controller

TEL's innovative fume cupboard auto sash controller maximises energy savings and provides increased safety for the operator.

- Auto close and auto open
- Tiptronic open/close - touch sensitive sash movement (menu selectable)
- Manual sash operation

VAV Controller

AFA1000/E

TEL's AFA1000/E is a pioneering airflow monitoring and alarm system developed to ensure the safety of users working industrial and educational fume cupboards.

- Programmable push buttons
- Bacnet and Modbus on board
- Audible alarm with red, amber and green LEDs
- 3 relay inputs and 3 relay outputs

VAV Controller and Auto Sash Controller

AFA4000

TEL's AFA4000 is a VAV Controller that has been developed with an optional Auto Sash integration, meaning you no longer need a separate Auto Sash keypad.

- Full colour 3.5" LCD Display for continuous velocity reading in m/sec or fpm
- Auto Sash integration
- Audible alarm with Red, Amber & green LEDS
- 3 relay inputs and 3 relay outputs

Airflow Controls
(VAV)

Full fresh air type fume cupboard ventilation systems waste a high amount of energy when they are not in use. TEL's innovative VAV controls are designed to provide variable airflow volume to ensure the safety of fume cupboard users, reduce energy consumption, costs and carbon emissions.

AFA4000

AFA4000

Fume Cupboard Controller and Auto Sash Controller

The AFA4000 is a pioneering airflow controlling system developed to ensure the safety of users working with industrial and educational fume cupboards. It is available with optional Auto Sash integration, meaning you no longer need a separate Auto Sash keypad.

SPECIFICATIONS

Digital Display Unit
- Digital velocity display fpm/m/sec
- Graphical display (Green/Safe, Amber/Caution, Red/Alarm)
- Three configurable pushbuttons
- Semi flush mounting

Range

Alarm
- 0.15-2.00 m/s (30-400fpm)
- Remote SM6 or ILS Airflow sensor

Control
- Face velocity control
- 0.15-2.00 m/s (30-400fpm)

Control Resolution
- 0.01 m/sec (2fpm)

Response Time
- < 2Seconds

Accuracy
- Face Velocity +/-5%

Power
- 3 configurable digital outputs
- 3 configurable digital inputs

Communications
- RS485 com port
- Modbus RTU and BACnet

Audio
- Audible alarm

Operating Temperature Range
- Monitor: 13-30 °C (55-86 °F)
- Airflow Sensor: 15-30 °C (59-86 °F)

Storage Temperature Range
- -30-65 °C (-86-150 °F)

Auto Sash
- Optional Auto Sash Integration

AFA1000/E (MK2)

AFA1000/E (MK3)

AFA1000/E MK2 & MK3

Fume Cupboard Controller

TEL's AFA1000/E is a pioneering airflow monitoring and alarm system developed to ensure the safety of users working industrial and educational fume cupboards and biological safety cabinets. The AFA1000/E is available fully flush (MK2) or semi flush (MK3). The dual output version allows control of a secondary function, such as supply air damper/inverter control or fresh air bleed damper control.

SPECIFICATIONS

Digital Display Unit
- Digital velocity display fpm/m/sec
- 3 x LEDs (Safe/Caution/Alarm)
- 3 configurable pushbuttons
- Fully flush mounting

Range

Alarm
- 0.15-2.00 m/s (30-400fpm)
- Remote SM6 or ILS Airflow sensor

Control
- Face Velocity control
- 0.15-2 m/sec (30-400fpm)

Control resolution
- 0.01m/sec (2fpm)

Response time
- < 2Seconds

Accuracy
- Face Velocity +/-5%

Power
- 3 configurable relay outputs
- 3 configurable relay inputs

Communications
- RS485 com port
- Modbus RTU and BACnet

Audio
- Audible alarm

Operating Temperature Range
- Monitor: 13-30˚C (55-86˚F)
- Airflow Sensor: 15-30˚C (59-86˚F)

Storage Temperature Range
- -30-65˚C (-86-150˚F)

AFA1000/RM

AFA1000/RM

Room Pressure Controller

The AFA1000/RM model is a wall mounted room differential pressure controller suitable for controlling the supply air into a room using a damper, valve or inverter.

SPECIFICATIONS

Digital Display Unit
- Digital pressure display Pa/Ins/wg
- 3 x LEDs (Safe/Caution/Alarm)
- Control resolution
- IP51 Enclosure
- 255mmH x 180mmW x 110mmD

Ranges
- Pressure range: 0-200 Pascals (0-0.8ins/wg)
- Control range: 0-200 Pascals (0-0.8ins/wg)
- Selectable ranges: multiple ranges available, please see spec sheet.

Control resolution
- 1 Pascal (0.004ins/wg)

Pressure overload
- 50K Pa

Response time
- < 1Second

Accuracy
- Pressure 0.25% FSS typical

Power
- Range Programmable low voltage transducer with 0-5V output mounted in IP65 housing
- 3 configurable relay outputs (High / Low Pressure & Door Open)
- 3 configurable relay inputs (Setback, Door Open & Emergency)

Communications
- RS485 com port
- Modbus RTU and BACnet MS/TP

Audio
- Audible alarm

Operating Temperature Range
- Controller: 13-30˚C (55-86˚F)
- Pressure Transducer: -20-70˚C (-4-158˚F)

AFA1000/BLD

AFA1000/BLD

Fresh Air Bleed Controller

The AFA1000/BLD is a wall mounted fresh air bleed controller suitable for controlling the VAV system duct pressure using a fresh air bleed damper or fan inverter drive.

SPECIFICATIONS

Digital Display Unit
- Digital pressure display Pa/Ins/wg
- 3 x LEDs (Safe/Caution/Alarm)
- IP51 Enclosure
- 255mmH x 180mmW x 110mmD

Ranges
- Pressure range: 0-2,500 Pascals (0-0.8ins/wg)
- Control range: 0-2,500 Pascals (0-0.8ins/wg)
- Selectable ranges: multiple ranges available, please see spec sheet.

Control resolution
- 1 Pascal (0.004ins/wg)

Pressure overload
- 50K Pa

Response time
- < 1Second

Accuracy
- Pressure 0.25% FSS typical

Power
- Range Programmable low voltage transducer with 0-5V output mounted in IP65 housing
- 3 configurable relay outputs (High / Low Pressure & Night Setback)
- 2 configurable relay inputs (Setback & Emergency)

Communications
- RS485 com port
- Modbus RTU and BACnet MS/TP

Audio
- Audible alarm

Operating Temperature Range
- Controller: 13-30˚C (55-86˚F)
- Pressure Transducer: -20-70˚C (-4-158˚F)

AFA1000/AHU

AFA1000/AHU

Duct Pressure Controller

The AFA1000/AHU model is a wall mounted pressure controller suitable for controlling the duct pressure of an AHU using an inverter drive.

SPECIFICATIONS

Digital Display Unit
- Digital pressure display Pa/Ins/wg
- 3 x LEDs (Safe/Caution/Alarm)
- IP51 Enclosure
- 255mmH x 180mmW x 110mmD

Ranges
- Pressure range: 0-2,500 Pascals (0-4ins/wg)
- Control range: 0-2,500 Pascals (0-4ins/wg)
- Selectable ranges: multiple ranges available, please see spec sheet.

Control resolution
- 1 Pascal (0.004ins/wg)

Pressure overload
- 50K Pa

Response time
- < 1Second

Accuracy
- Pressure 0.25% FSS typical

Power
- Range Programmable low voltage transducer with 0-5V output mounted in IP65 housing
- 3 configurable relay outputs (High / Low Pressure & Night Setback)
- 2 configurable relay inputs (Setback & Emergency)

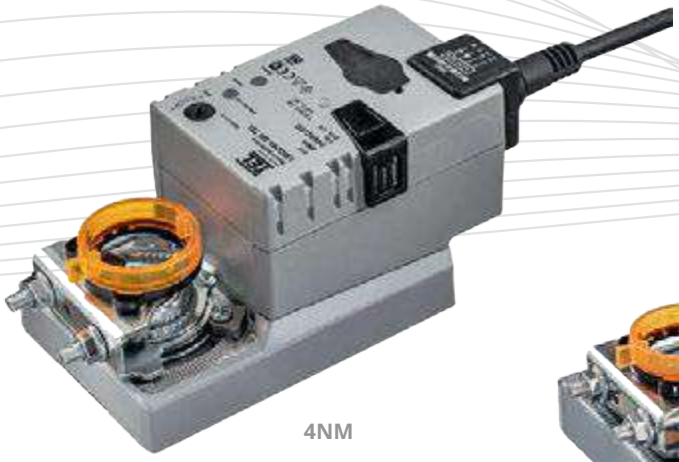
Communications
- RS485 com port
- Modbus RTU and BACnet MS/TP

Audio
- Audible alarm

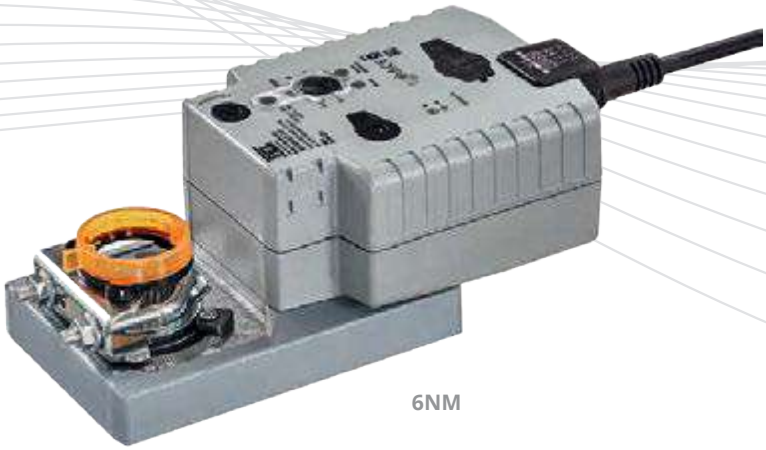
Operating Temperature Range
- Controller: 13-30˚C (55-86˚F)
- Pressure Transducer: -20-70˚C (-4-158˚F)

Actuators

TEL's actuators can adjust dampers in technical building installations with an option of emergency control function and extended functionalities.



4NM



6NM

4NM

Fume cupboard Actuator

Modulating damper actuator for adjusting dampers in laboratories.

SPECIFICATIONS

Technical data

- Air damper size up to approx. 0.8 m²
- Nominal torque 4 Nm
- Nominal voltage AC/DC 24 V
- Control Modulating DC (0)2...10 V
- Position feedback DC 2...10 V
- Running time motor 2.5 s

Product features

- Direct mounting
- Manual override
- High functional reliability
- Adjustable angle of rotation

6NM

SuperCap Actuator

Modulating SuperCap rotary actuator with emergency control function and extended functionalities for adjusting dampers in laboratories.

SPECIFICATIONS

Technical data

- Air damper size up to approx. 1.2 m²
- Nominal torque 6 Nm
- Nominal voltage AC/DC 24 V
- Control Modulating DC (0)2...10 V
- Position feedback DC 2...10 V
- Running time motor 4 s
- Design life SuperCaps: 15 years

Product features

- Direct mounting
- Manual override
- High functional reliability
- Adjustable angle of rotation

Volumetric ***CONTROLS***

Our innovative volumetric controller, which can also be used as a monitor, utilises a bell mouth type venturi restrictor to accurately measure the extract volume of a fume cupboard. It also provides VAV control based on sash position, programmable fixed set points or 0-10VDC analogue input.

VAV

(Sash Position Control)

The controller operates using a floating set point dependent on sash position.

3 Term control

(Pushbutton Control)

The controller operates using fixed volume set points (Vmax/Vnorm/Vmin) independent of sash position.

CAV Box control

(Fixed Volume set point)

The controller operates to a fixed volume set point to give Constant Volume operation.

VAV Box control

(Remote 0-10VDC Input control)

The controller operates from an analogue input voltage to a volume range between Vmin and Vmax parameter values.

SPECIFICATIONS

High Contrast Backlit Minatare Display

- Display of Volume and Alarms

LED Indication

- Safe / Warning / Low volume

Audio

- Red LED with Audio alarm

Pressure Sensor

- High Accuracy Pressure cell(s)

Pushbuttons

- Fan On/Off
- Lights On/Off
- Vmax / Vnorm / Vmin
- Mute

Inputs

- 2 x Sash Position Sensor
- 5 x Programmable Digital Sash Switch Inputs

Outputs

- Analogue 0-10VDC volumetric output
- Analogue 0-10VDC control output
- Volt Free Change Over Fan Relay
- 2 x Volt Free Change Over Lights Relays
- Volt Free Change Over Low Volume Alarm Relay Output

Pressure Range

- Max 250 Pascals across orifice / venture device

Volume Range

- Dependant on orifice device, max 0 – 5000m3/hr

Optional

- Plug in RS485 Coms with BACnet MS/TP and Modbus RTU protocols
- Plug in Mains Fail Battery Unit
- Plug in Battery Back Up Unit
- Plug in Fail Safe Actuator Enerdrive Unit

Laboratory Room Space ***CONTROLLER***

The AFA5000 Laboratory Room Space Controller is an intelligent touch screen room controller offering demand-control ventilation for up to 64 fume cupboards per room without the need for a building management system.

The only Room Space Controller of its type available on the market, the AFA5000 can communicate directly with fume cupboard systems, measuring their precise airflow requirements and allowing air to be controlled exactly according to need, minimising energy consumption and allowing you the peace of mind to get on with the job at hand.

AFA5000 Laboratory
Room Space Controller

AFA5000

Laboratory Room Space Controller

The controller can be configured to operate the room space ventilation based on differential room pressure, air quality control, volumetric control or any combination of the control philosophies and can be fully configured in the field using the on board password protected menus.

FEATURES INCLUDE:

- Differential Room Pressure control
- Volumetric control of Supply make-up air
- Volumetric control of Room exhaust air
- CO2/Humidity/VOC Demand based control
- Heating control
- Cooling Demand based control
- Occupancy control
- Time Scheduling with Setback / out of hours' control
- Over Diversity status / alarms
- RS485 connection to AFA1000 VAV controllers
- Historical Graphical display of all active functions
- Optional Expansion module with additional 6 programmable I/O connections
- Local display of active functions with low and high audible / visual alarms
- Password protected menu set up and configuration
- 7" HMI Touchscreen, wall or panel mountable
- Metric / imperial units

Auto Sash
CONTROLLERS

TEL's auto sash controller is designed to close the sash when the operator is not present in front of the fume cupboard. A passive infra-red (PIR) sensor constantly monitors the work area in front of the fume cupboard and if no movement is detected and the sash opening is clear, the sash will automatically close after a pre-determined time.

Auto Sash Controllers

AFA4000

AUTO

Sash Controller

The Auto Sash Controller can be fitted to new or existing VAV or CAV fume cupboards with a choice of three motor drive systems. A dual auto sash controller is also available to operate on fume cupboards with two sashes, including walk in type, back to back type and side by side type sashes.

AFA4000

Auto Sash Controller

The AFA4000 is available with optional Auto Sash integration, meaning you no longer need a separate Auto Sash keypad.

SPECIFICATIONS

Digital Display Unit

- Status indication
- 16*2 backlit LCD display keypad with pushbuttons
- AFA4000 display unit

Sensors

- Personnel Sensor: PIR with background re-learn function
- Sash Position Sensor: steel wire sprung potentiometer
- Sash Sensor: PIR sensor with glass detection
- Tilt switch input to inhibit controller if access panel is open

Power

- Supply: 100-240VAC 50/60Hz 3A
- Motor assembly: PWM output DC motor & clutch
- 4 programmable volt free BMS inputs
- 4 programmable volt free BMS outputs

Control Function Options

- Manual sash operation (when user detected)
- Tiptronic "touch sensitive" open/close
- Auto close (unoccupied condition)
- Auto open (pushbutton enable feature)
- Keypad Pushbutton open/close
- Footswitch open/close (optional)
- BMS input open/close

Alarm

- Audio and visual indication

Airflow Monitors ***(CAV)***

Our range of innovative airflow monitors are designed specifically to ensure the safety of users working with industrial and educational fume cupboards and biological safety cabinets.

TEL airflow monitors can be found in research centres, universities and colleges, government facilities, hospitals and laboratories across the world, ensuring the safety of staff and legislation compliance.

AFA4000/1

AFA4000/1

Airflow Monitor

The AFA4000 is a pioneering airflow monitoring system developed to ensure the safety of users working with industrial and educational fume cupboards.

SPECIFICATIONS

Digital Display Unit
- Digital velocity display fpm/m/sec
- Graphical display (Green/Safe, Amber/Caution, Red/Alarm)
- Three configurable pushbuttons
- Semi flush mounting
- 3.5" screen

Range

Alarm
- 0.15-2.00 m/s (30-400fpm)
- Remote SM6 or ILS Airflow sensor

Accuracy
- Face Velocity +/-5%

Power
- 3 configurable digital outputs
- 3 configurable digital inputs

Communications
- RS485 com port
- Modbus RTU and BACnet

Audio
- Audible alarm

Operating Temperature Range
- Monitor: 13-30 °C (55-86 °F)
- Airflow Sensor: 15-30 °C (59-86 °F)

Storage Temperature Range
- -30-65 °C (-86-150 °F)

Auto Sash
- Optional Auto Sash Integration

AFA4000/2

AFA4000/2

Airflow Monitor

The AFA4000 is a pioneering airflow monitoring system developed to ensure the safety of users working with industrial and educational fume cupboards, featuring a unique customisable push button function.

SPECIFICATIONS

Digital Display Unit
- Digital velocity display fpm/m/sec
- Graphical display (Green/Safe, Amber/Caution, Red/Alarm)
- Three configurable pushbuttons
- Semi flush mounting
- 3.5" screen

Range

Alarm
- 0.15-2.00 m/s (30-400fpm)
- Remote SM6 or ILS Airflow sensor

Accuracy
- Face Velocity +/-5%

Power
- 3 configurable digital outputs
- 3 configurable digital inputs

Communications
- RS485 com port
- Modbus RTU and BACnet

Audio
- Audible alarm

Operating Temperature Range
- Monitor: 13-30 °C (55-86 °F)
- Airflow Sensor: 15-30 °C (59-86 °F)

Storage Temperature Range
- -30-65 °C (-86-150 °F)

Auto Sash
- Optional Auto Sash Integration

AFA500

AFA500

Airflow Monitor

An entry level airflow monitor designed for applications where airflow velocity indication is not required. The AFA500 is available with either a built in or remote unique airflow sensor that is used to measure face velocities or duct velocities and available fully flush (MK2) or semi flush (MK3). Also available for Bio Safety Cabinets (AFA500/BSC).

SPECIFICATIONS

Digital Display Unit
- 2 x LEDs (Safe/Alarm)

Accuracy
- Velocity +/-5%

Audio
- Red LED with audible alarm

Operating Temperature Range
- 13-30 °C (55-86 °F)

AFA1000/1

AFA1000/1

Airflow Monitor

The AFA1000/1 is a digital airflow monitor designed for applications where pushbutton functions are not required and is available with a range of remote unique airflow sensors used to measure face velocities or duct velocities. Available fully flush (MK2) or semi flush (MK3).

SPECIFICATIONS

Digital Display Unit

- Digital velocity display fpm/m/sec
- 3 x LEDs (Safe/Caution/Alarm)

Accuracy

- Face velocity +/-5%

Communications

- RS485 com port
- Modbus RTU and BACnet

Audio

- Red LED with audible alarm

Airflow sensor

- Integral Airflow Sensor or remote SM6/ILS

Operating Temperature Range

Monitor

- 13-30 °C (55-86 °F)

Airflow Sensor

- 15-25 °C (59-77 °F)

Power

- 3 configurable relay inputs
- 3 configurable relay outputs

AFA1000/2

AFA1000/2

Airflow Monitor

The AFA1000/2 is a digital airflow monitor designed for applications where pushbutton functions are required and is available with a range of remote unique airflow sensors used to measure face velocities or duct velocities. Available fully flush (MK2) or semi flush (MK3).

SPECIFICATIONS

Digital Display Unit

- Digital velocity display fpm/m/sec
- 3 x LEDs (Safe/Caution/Alarm)

Accuracy

- Face velocity +/-5%

Communications

- RS485 com port
- Modbus RTU and BACnet

Audio

- Red LED with audible alarm

Airflow sensor

- Integral Airflow Sensor or remote SM6/ILS

Operating Temperature Range

Monitor

- 13-30 °C (55-86 °F)

Airflow Sensor

- 15-25 °C (59-77 °F)

Power

- 3 configurable relay inputs
- 3 configurable relay outputs

AFA1000/PR

AFA1000/PR

Pressure Monitor

The AFA1000/PR is a pressure monitor suitable for room or duct differential pressure monitoring and BSC pressure monitoring, available fully flush mounting (MK2).

SPECIFICATIONS

Digital Display Unit

- Digital pressure display Pa/Ins/wg
- 3 x LEDs (Safe/Caution/Alarm)
- Control resolution
- IP51 Enclosure
- 255mmH x 180mmW x 110mmD

Ranges

- Multiple selectable ranges, please see spec sheet for more details

Control Resolution

- 1 Pascal (0.004ins/wg)

Pressure overload

- 50K Pa

Accuracy

- Pressure 0.25% FSS typical

Power

- Range Programmable low voltage transducer with 0-5V output mounted in IP65 housing
- 3 configurable relay outputs (High/Low pressure & Door Open)
- 3 configurable relay inputs (Setback, Door Open & Emergency)

Communications

- RS485 com port
- Modbus RTU and BACnet MS/TP

Audio

- Audible alarm

Operating Temperature Range

- Controller: 13-30 °C (55-86 °F)
- Pressure Transducer: -20-70 °C (-4-158 °F)

Volumetric

Monitor

SPECIFICATIONS

High Contrast Backlit Minatare Display

- Display of Volume and Alarms

LED Indication

- Safe / Warning / Low volume

Audio

- Red LED with Audio alarm

Pressure Sensor

- High Accuracy Pressure cell(s)

Pushbuttons

- Fan On/Off
- Lights On/Off
- Mute

Outputs

- Analogue 0-10VDC volumetric output
- Volt Free Change Over Fan Relay
- 2 x Volt Free Change Over Lights

Relays

- Volt free Change Over Low Volume Alarm Relay Output

Pressure Range

- Max 250 Pascals across orifice / venture device

Volume Range

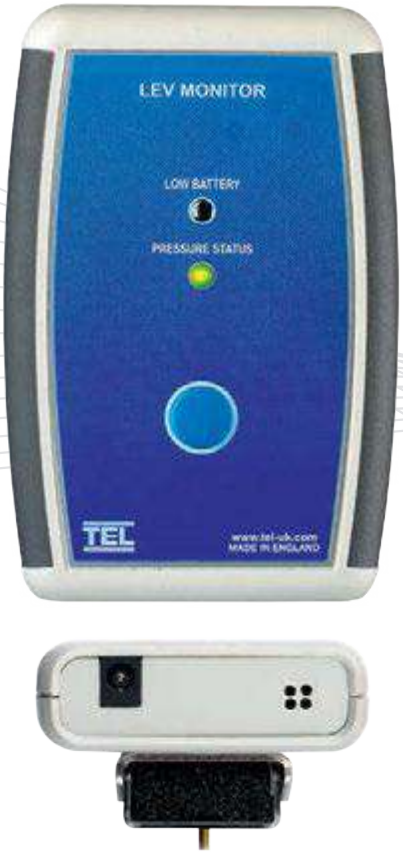
- Dependant on orifice device, max 0 – 5000m3/hr

Optional

- Plug in RS485 Comss with BACnet MS/TP and Modbus RTU protocols
- Plug in Mains Fail Battery Unit
- Plug in Battery Back Up Unit
- Plug in Fail Safe Acuator Enerdrive Unit

LEV Monitor

Designed specifically for low and high pressure, TEL's LEV Monitor can be fitted to any ducting or LEV extraction device, to check the airflow is adequate and keeping your employees continually safe in their working environment.



LEV Monitor

LEV
Monitor

TEL's LEV monitor provides the reassurance that the flow-rate is being maintained, protecting your employees and alerting operators of any problems immediately. It can be fitted to any ducting or LEV extraction device.

SERIES SPECIFICATION – Mains Powered & Battery Powered

Pressure sensor
- Integral pressure cell with 3mm x 25mm duct spigot

Pressure range
- 0-1500 Pascals (0-6ins/wg)

Repeatability
- Duct pressure +/-1%

Range
- Low pressure: 0-1200 Pascals (0-6ins/wg) / -20% of captured pressure
- High pressure: 0-1200 Pascals (0-6ins/wg) / +20% of captured pressure

Indication
- Safe pressure: green LED, single LED flash every 60 seconds
- Low pressure: red LED with audible alarm, single LED flash every 60 seconds
- High pressure: red LED with audible alarm, double LED flash every 60 seconds

Mounting
- Duct Mounting bracket to fit 35mm - duct up to flat surface

Temperature Range
- Monitor operation: 13-30˚C (55-86˚F)
- Storage: -40-65˚C (-40-150˚F)

Kitchen Hood Controls
(VAV)

TEL's kitchen control system can detect both smoke and temperature rises, increasing the airflow only when full performance is needed, significantly reducing energy costs and the carbon emissions of your kitchen hood.

Kitchen Hood VAV System

Kitchen Hood

VAV System

TEL's kitchen control system can detect both smoke and temperature rises, increasing the airflow only when full performance is needed, significantly reducing energy costs and the carbon emissions of your kitchen hood. The system can be supplied with a Gas Interlock system, which will cut off gas flow in the event of kitchen ventilation failure.

SPECIFICATIONS

Digital Display Unit

- LCD graphical display showing output status, operating mode, temperatures and alarms
- Metric / imperial units
- Manual / Off / Auto operation, preset with 10 manual speeds
- Wall mounted enclosure
- On board clock with up to 4 on/off periods per day

Control

- Method: temperature differential between room and hood
- Range: room temp + 50º C max
- Room temperature control override if set point is exceeded

Fans

- Exhaust: 0-10v control signal to VFD with volt free stop/start output
- Supply: 0-10v control signal to VFD with volt free stop/start output

Auto Control

- Auto detect / Auto run on : auto start up and control if cooking detected during off period
- Menu selectable operation via keypad
- BAS coms
- Volt free input

Sensors

- IR sensor input for smoke detection
- 10K thermistor type room and hood temperature sensors

Fire system interlock

- Volt free input

Power

- Operating voltage: 100-240VAC 1.8A Max
- Manual boost function for selectable time period

Communications

- Modbus RTU and BACnet MS/TP

Case Studies

Tocris Bioscience

Challenge

Bristol-based Tocris Bioscience was looking to expand its capacity by converting an industrial unit into a new 765m² laboratory space. The new laboratory had to be highly energy efficient and meet the exacting standards of the US-based parent company Bio-Techne.

Solution

Tocris selected laboratory design and equipment supplier Köttermann to oversee the project and in turn Köttermann chose TEL to supply VAV controllers for all fume cupboards.

Our AFA1000/E VAV controllers automatically adjust airflow according to need, decreasing the volume of air extracted when the cupboards are not in use, providing a more energy-efficient solution than conventional CAV controllers.

59 fume cupboards were installed in the new laboratory, each featuring TEL controllers fitted with volumetric sensors and adaptors to provide extract data for the building management system.

"TEL and Kötterman worked in partnership to deliver an energy-efficient laboratory that met our needs precisely."

Director of Chemistry & Operations at Tocris Bioscience

Benefits

Improved energy efficiency: the new unit which was completed in December 2015 is three times the size of Tocris' old unit and contains double the amount of fume cupboards but only consumes 50% more energy.

Improved comfort: by limiting the volume of extracted air, TEL's VAV system has improved the comfort of lab users.

Technical problem-solving: TEL's technical expertise meant they were able to accommodate Tocris' atypical extract fan configuration. Despite the lack of balancing actuators (which meant that some cupboards were subjected to particularly high pressure) TEL's controllers maintained control of face velocities.

University of Glasgow

University of Glasgow – refurbishment

Energy saving: 270 MWh per year

Cost saving: over £34,000 per year

Challenge

The University of Glasgow wanted to save energy usage and costs to contribute to the Scottish government's target of a 42% reduction in national greenhouse gas emissions by 2020. A new laboratory refurbishment project was planned to help achieve its goals.

Solution

The University engaged leading fume cupboard manufacturers Laboratory Specialist Services Ltd to consolidate its medicinal chemistry and chemical biology laboratories into a single 500m² open plan laboratory.

Reading University

Challenge

Reading University was embarking on an estate-wide upgrade of science laboratory fume cupboards as part of its Extracting Carbon Savings from our Science Labs project. Its primary aim was to reduce carbon emissions but it also wanted to cut energy costs.

Solution

In 2016, Reading University appointed TEL and CSW Technical to replace 98 extractor fans with high efficiency alternatives, re-duct 49 chemical storage cupboards and install PIR sensors on fume cupboards with associated alarms.

Fume cupboards in 22 laboratories over three buildings were upgraded from constant air volume (CAV) to TEL's AFA1000 variable air volume (VAV) controllers.

Benefits

Energy and cost savings: the upgrade is expected to generate annual energy savings of 694 CO^2 tonnes per year and £223,958 in cost savings.

Improved comfort: the initiative has also created a warmer, more comfortable environment for laboratory users.

"TEL and CSW Technical have worked together to deliver a fume cupboard system that has had a major impact in reducing our carbon emissions – not to mention costs – supporting our drive to deliver sustainable operations that complement our world-leading climate research."

Energy Manager, Reading University

Laboratory Specialist Services Ltd selected TEL's VAV fume cupboard system as an energy-saving alternative to a conventional constant airflow volume (CAV) system. TEL's AFA1000/E digital airflow controllers and auto sash controllers were installed to regulate airflow according to need and automatically close fume cupboards when they were not in use.

Benefits

Energy and cost savings: the project resulted in a saving of 270 MWh of energy and over £34,000 in energy costs.

Recognition: the project won a coveted S-Lab Award, which recognises excellence in the design, operation and management of laboratories.

"The new fume cupboard VAV control system is playing a major role in minimising our energy consumption and expenditure, and we are delighted that our sustainable refurbishment has been recognised by S-Lab."

Graham Tobasnick at the University of Glasgow School of Chemistry.

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