MIDTHERM
Engineering Limited

IntelligentControlsSystems

An introduction to the X-Stream natural ventilation range of intelligent controls systems for optimal management of Midtherm natural ventilation products.

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Intelligent controls saving you money

Our range of X-Stream control units have been developed by Midtherm Engineering to our unique requirements and specifications. The popular control systems for which these units are designed include a Standalone, Standalone Plus and Modbus Open Protocol configuration, each of which can be further adapted to suit our client's requirements. They range from the standalone wall switch operated systems to a fully automated intelligent touch screen configuration, which is designed to integrate with a wider Building Energy Management System (BEMS), usually via Modbus RTU Open Protocols.

Intelligent Control Systems

All of our systems use both reliable LCD displays and simple LED traffic lights to provide exact and informative sensor measurements combined with visual readings for spatial temperature and CO_2 levels.

We believe that the modern customer is increasingly interested, informed and capable of comprehending the impact of temperature and carbon dioxide levels and understanding their importance when applied to the environment and employee performance.

At the centre of all of our systems is the MID-2012 control panel. Each system is configured around this module to meet individual requirements. We also supply a selection of additional key system components within our packages.

The X-Stream control system versions include:

- 1.0 - Standalone Control System.
- 2.0 - Standalone Plus System with optional control of automatic windows and underfloor heating.
- 3.0 - Modbus Open Protocols with connection to popular BEMS systems.

A Selection Of Key System Components

System Controllers

MID-2012
Designed for the regulation of cooling and heating applications. Its integrated sensors control the temperature levels and can be linked to Modbus RTU sytems. MID-2012 features LCD and touch sensitive buttons.

MID-IMC *Intelligent Master Controller*
Allows a building manager to optimise critical changes to room temperatures, CO_2 levels, service alarms, weather data and scheduling for up to 64 Modbus enabled devices. Multiple units can be used to manage larger systems on a floor by floor basis. Remote internet maintenance access can also be utilised as an option.

Zone timers & wiring centres

MID-TRT038 / MID-TRT039
A 3 or 4 zone controller for night time cooling and boost override, incorporating a 24hr 7 day digital programme, with 1hr or 2hr boost ventilation setting and holiday mode to suspend progammes if needed. It features an automatic Summer/Winter programme changeover, which facilitates reduced user intervention.

MID2050-1 / MID2050-6
IP54 rated wiring centre supporting single or multiple actuators. Each unit has a 24V power supply for our range of control components.

We stock a wide range of equipment to complement our natural ventilation and lighting applications

These products include lockable sensor covers, fan controllers, adjustable window actuators, modulating and open-close actuators, solar charge controllers, solar battery remote meters and monocrystalline solar panels.

As part of Midtherm's commitment to protecting the environment, we ensure that we give a traceable account of what happens to waste created from the work we undertake.

Where there are redundant parts, we ensure that the waste is sent for recycling to be re-used in the production of other products.

We endeavour to recycle as much as 95% of all waste that is produced from the work we carry out.

Sensors

MID-CO_2
Carbon dioxide sensor used to trigger ventilation boosts and features traffic light indicators - CO_2 count as per EU standard:

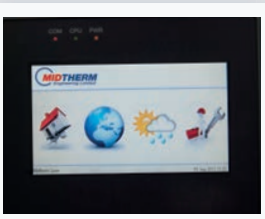
1. > 1250 PPM - Red
2. > 750 PPM - Orange
3. < 750 PPM - Green

MID-SA10
Highly reliable heated rain and snow sensor suitable for BEMS and Boiler Management System (BMS).

MID-WSB
Wind speed and direction, rain, brightness and temperature sensor.

MID-WS485
Modbus weather station monitoring wind speed, precipitation and external temperature.

MID-WND
24V wind speed and external temperature sensor suited to standalone systems.



Relay modules, fan speed controllers & other controls

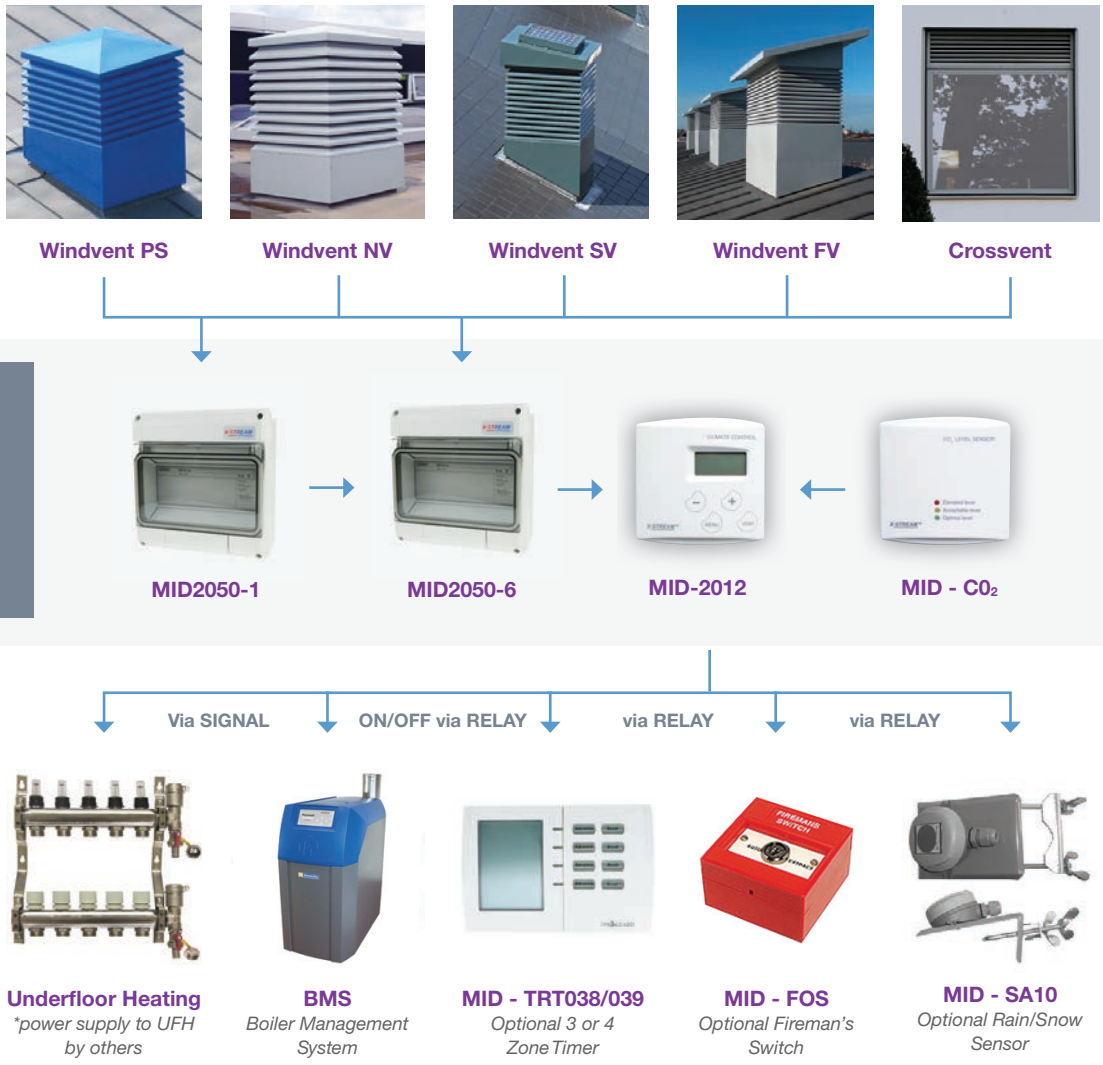
MID-RRM
Relay module for controlling dampers within single or multiple zones.

MID-FRM
Fan relay module to enable operation of solar and mains powered fans within our ventilation systems.

MID-FOS
IP rated Fireman's override key switch for use with MID2050-1/6 wiring centres. This allows the local fire department to select uniform open or shut damper position in an emergency.

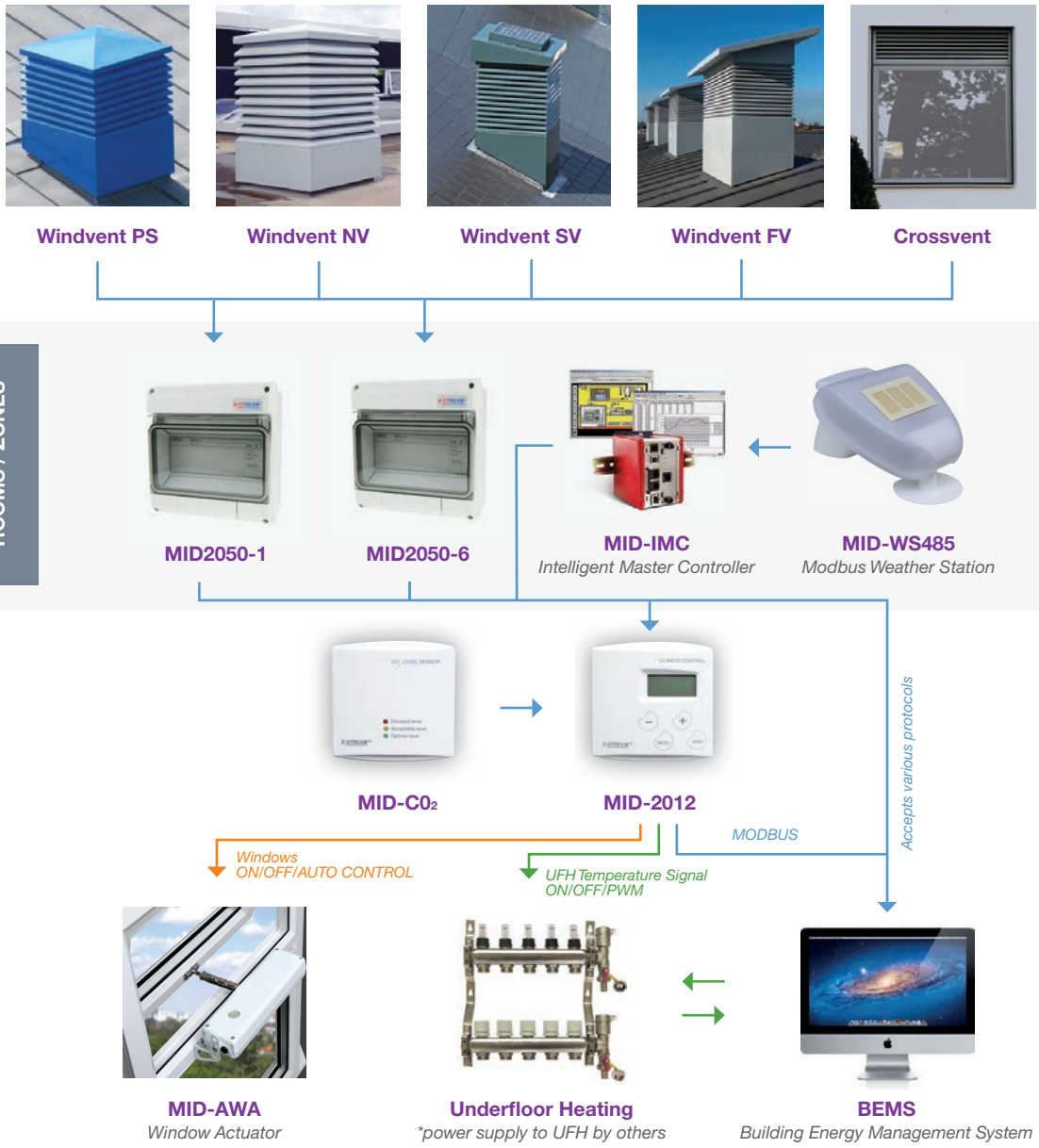
MID-FSC
Variable fan speed controller unit. Controlling fan speeds for internal requirements.

System 1.0 - Standalone



The Standalone System is designed for smaller projects of up to 12 zones that have a BMS system with no open protocol communication. This system delivers efficient control of natural ventilation and underfloor heating temperatures, ensuring that there is no conflict between running the heating or ventilation. The package has the ability to fully modulate our natural ventilation actuators and control the speed of solar powered and hard wired fans. The standalone 1.0 has a Summer and Winter mode, ensuring maximum building efficiency and optimal comfort levels. Night time cooling is available via optional MID-TRT038/039 zone controllers typically giving 20% reduction in daytime cooling requirements. Further control options include a heated rain, snow, external temperature sensor and fireman's override key switch.

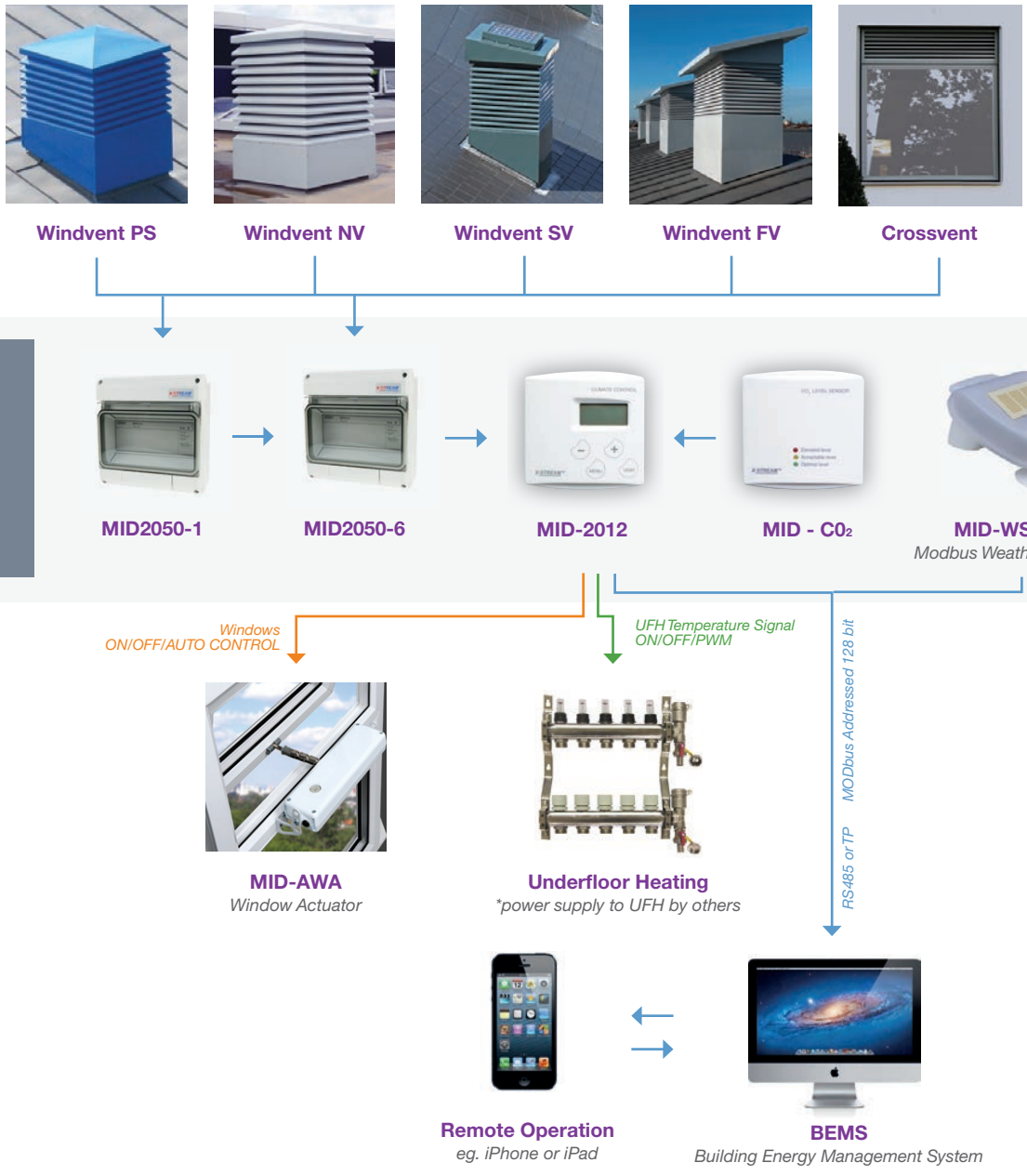
System 2.0 - Standalone Plus



The Standalone Plus system is designed to facilitate a fully automatic configuration and introduces our MID-IMC Intelligent Master Controller, powered by Midtherm designed natural ventilation software. This system provides building managers with the capability to manage all zones from a single controller, including temperature and CO_2 set points, zonal on/off times and holiday scheduling. This package has the ability to monitor external weather conditions at any time via the Modbus weather station.

The MID-IMC Controller is capable of managing between 1 and 64 separate natural ventilation and underfloor heating zones per installation, with password access for multiple users. If an existing BMS or BEMS does not support Modbus open protocol communication then the standalone plus can send simple on/off signals without the need for additional software or further setup. The MID-IMC will then manage both the ventilation airflows and underfloor heating temperatures automatically to Summer or Winter.

System 3.0 - Modbus Open Protocols



Our Modbus Open Protocol intelligent controls configuration is designed and purpose built to utilise Modbus Open Protocols to communicate with the majority of front end Building Energy Management Systems (BEMS). The physical connection is generally via an RS485 network, allowing full integration with our MID-2012 controllers providing read and write capabilities that enable changes to Summer/Winter mode settings, night and day temperature set points and many other features of our MID-2012 controllers.

This system supports up to 128 separate MID-2012 natural ventilation and underfloor heating zones per installation and is suitable for large scale projects where the intelligent control of HVAC is essential. Multiple sets can be installed for even bigger projects.

Table of Control Options

- Required
- Optional

	MID-2012	MID-HDH	MID-IMC	MID-TRT038	MID-TRT039	MID2050-1	MID2050-6	MID-CO_2	MID-SA10	MID-WND	MID-WS485	MID-WSB	MID-RRM	MID-FRM	MID-FOS	MID-WRS	MID-CLC
System 1.0 *Standalone Control System*	●	○	○	○	○	●	●	○	○	○			○	○	○	○	○
System 2.0 *Standalone Plus Control System with optional windows & underfloor heating controls*	●	○	○			●	●	○	○	○	○	○		○	○	○	○
System 3.0 *Modbus Open Protocols Intelligent Controls Systems*	●	○				●	●	○	○	○	○	○		○	○	○	○

A range of Master Controls helping you control your spend.

MID-2012 Controller

The MID-2012 room control module is the central point from which all our natural ventilation systems, zone timers, sensors and other system components are regulated.

The MID-2012 unit is a cost effective, wall mounted ABS plastic controller installed within each heating/ ventilation zone. It is capable of controlling fan operation, humidity, temperature, CO_2 levels and heating. The unit can easily be linked to most Boiler Management Systems (BMS) via Modbus RTU and is suitable for almost all building requirements.

The MID-2012 unit can control up to six 24V actuators and either our hard wired or solar boost fan systems. The fans are adjusted via modulating speed as opposed to energy consuming on/off switching systems and are linked to internal room condition requirements. The unit is also capable of controlling our Crossvents and automatic openable windows, both of which Midtherm supply and install as part of our range.

Easy to use

The rate of air flow from Windvents or actuated windows can easily be altered or overridden by users, to meet requirements via the control panel buttons (with a timeout). The MID-2012 can also facilitate night purging to enable building cooling and refreshment during cooler evening temperatures.

Simple integration via Modbus

The MID-2012 controller has a Modbus RTU RS485 interface that can easily integrate and communicate with almost any building BEMS & BMS. The Modbus interface also enables critical system functions such as modulating the air damper at high wind speeds, during heavy rain or activating the night time purge.

Suitable for standalone systems

The MID-2012 controller is also designed for use in standalone systems and includes digital input, purge control and scheduling functions. The controller can be effortlessly linked to system dampers and fans by using the necessary wiring centre options. The night time purge function operates by use of an outside air temperature sensor.

Pre-set functions of the MID-2012 include:

- Temperature monitoring for both ventilation & heating control.
- Day/night mode.
- Summer/Winter setting modes.
- Local damper override function for purge ventilation.
- Night time cooling with frost protection.
- Fan override option for room occupants.
- CO_2 monitoring for occupied rooms (*optional extra).
- External weather conditions monitoring, controlling all actuators.
- Automated window actuator 0-10v control signals.
- Fire interlock signal to open/close actuators (*optional extra).
- Pre-set control and user lock out features.

Clear LCD and easy to use multi-functional buttons


The unit can be discreetly located

Simple internal wiring set-up


MID-2012 installed with MID-CO_2 sensor and TRT-039 timer


Internal view of Crossvent

Naturally Driven Installations

Midtherm Engineering's Naturally Driven controls portfolio includes a range of control system solutions to complement our line of commercial natural ventilation and lighting products, including the Windvent NV, Windvent PS, Windvent FV, Windvent VL, Windvent SV, Crossvent and X-Stream range of natural ventilators.

Our control system products can be purchased independently for your own installation or we can advise, design and install a system tailored to suit your individual project requirements.

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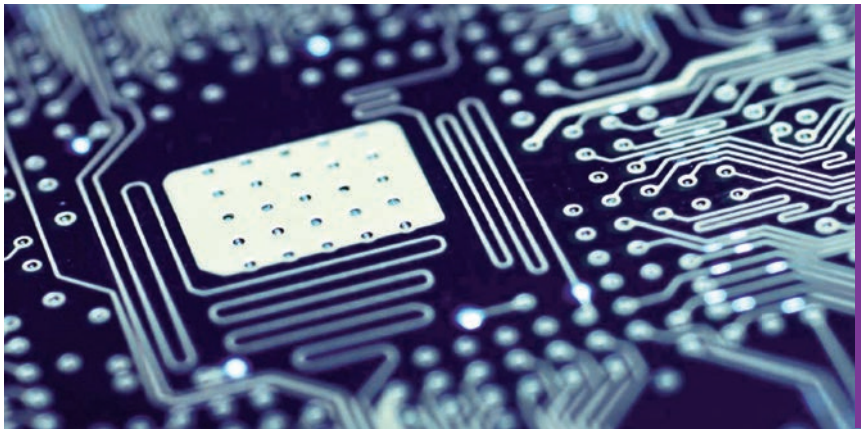

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Other products available from Midtherm:

Flues Masts and Chimneys | Commercial Canopies | Industrial Fan Systems | Natural Ventilation Systems | X-Stream Systems | i-Window Systems