



Eco Building Services Product Overview

0.75kW – 250kW / 1HP – 350HP
200 – 600V Single & 3 Phase Input

IP20

IP55

IP66



Reduced Harmonic Distortion (THDI)

- Meets EN 61000-3-12 without external equipment

Higher Input Power Factor

Improved Efficiency

IE2, IE3 and IE4 Motor Control

Improved Performance

Dedicated Pump Control Features

Added Flexibility



eco
OPTIDRIVE™

Dedicated HVAC Drive

0.75 – 250kW / 1.0 – 350 HP

Focus on Ease of Use

Dedicated HVAC Features:

- BACnet (RJ45 connector)
- Fire Mode for smoke extraction
- Fan-belt break detection
- Motor Spin-Start
- PID Loop w/ Sleep & Wake Levels
- Hand/Auto Button on keypad
- Bypass control
- Speed slaving with speed scaling



Seven Frame Sizes

- FS2 – FS8

0.75 – 250kW (1 - 350HP)

200 – 600 Volt

- 200 – 240 Volt, 1 Phase Input, 0.75 – 2.2kW
- 200 – 240 Volt, 3 Phase Input, 0.75 – 75kW
- 380 – 480 Volt, 3 Phase Input, 0.75 – 250kW
- 480 – 525 Volt, 3 Phase Input, 150 – 200kW
- 500 – 600 Volt, 3 Phase Input, 0.75 – 110kW

IP20, IP55, IP66

- IP20 FS 2, 3, 4, 5, 8
- IP66 FS 2, 3
- IP55 FS4, 5, 6, 7



IP20

Frame Sizes 2 – 5 (+8)

- ✓ Panel mounting design
- ✓ Fan Cooled



IP66

Frame Sizes 2 – 3

- ✓ Wall mounting design
- ✓ With / Without Isolator
- ✓ Convection Cooled



IP55

Frame Sizes 4 – 7

- ✓ Wall mounting
- ✓ Fan Cooled



Optidrive Eco Energy Efficiency



Save Energy, Cut CO₂



eco
OPTIDRIVE™

Optidrive Eco – Green Credentials

A Responsibility to the Customer,
and to the environment...

- Designed for Maximum Motor Control Efficiency
- RoHS Manufactured
- Intelligent Standby
- Energy Optimisation Mode
- EN61000-3-12 Compliant



Optidrive Eco – Green Credentials

A Responsibility to the Customer, and to the environment...

Energy Estimation Tool

- Available as Simple Website Form
- Available as Download Application
- Predicts Energy Usage
- Predicts Energy Savings
- Predicts CO2 Usage
- Predicts CO2 Savings

The image displays the 'Energy Savings Calculator' interface. On the right, a website form includes fields for 'Customer Company', 'Currency', 'Generated power (kW)', 'Cost per kWh of electricity', 'Number of operational hours per year' (with sub-fields for 'Days per day', 'Days per week', and 'Weeks per year'), 'Cost of Optidrive', and 'Installation Cost'. Below these are bar charts for 'Total operating time' and a table showing 'Operating time (%) at % rated flow' with columns for 30%, 40%, 50%, 60%, 70%, 80%, and 100%.

In the center, a smartphone shows the app's interface with the title 'Energy Savings Calculator' and the 'Invertex Drives' logo. It features sliders for 'Hours /day' (set to 9), 'Days /week' (set to 5), and 'Weeks /year' (set to 46). At the bottom, it displays 'Operating time (%) at % rated flow'.

At the top left, a calculator icon is overlaid with a pound sterling symbol (£) and a Euro symbol (€).

At the bottom right, there are two download buttons: 'GET IT ON Google play' and 'Download on the App Store'.

Optidrive Eco Key Features










OLED Display

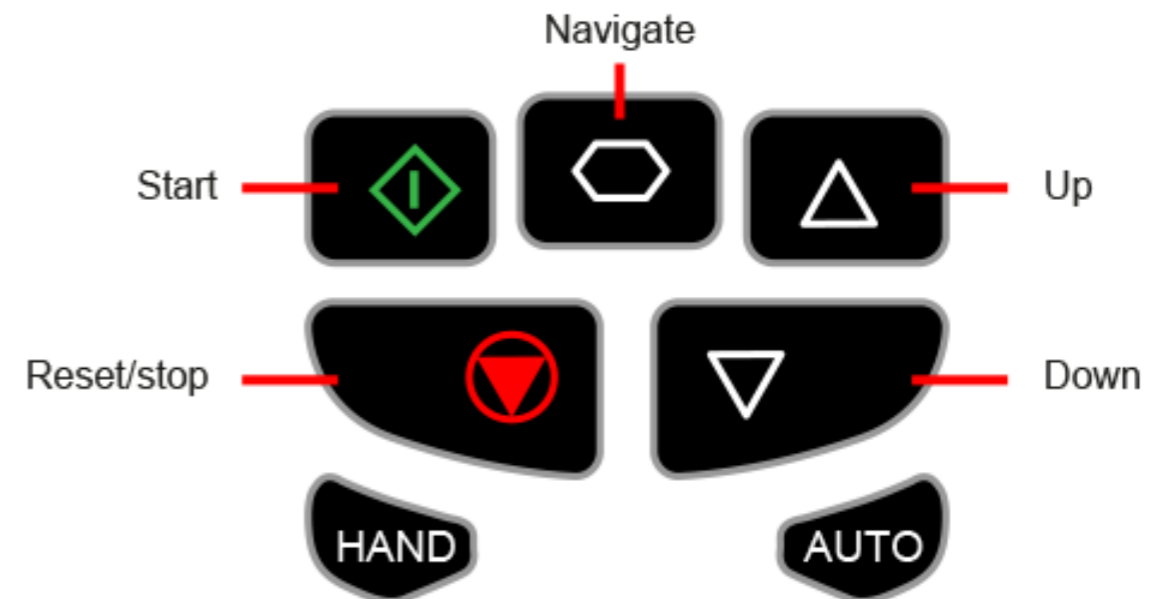
OLED Multi Language Plain Text Display

- Factory Fit and Stand Alone Options
- Multi-Line Text Display
- Instant visibility for Voltage, Current, Power, Operating Condition
- High visibility from virtually any angle
- User Defined / Scaled Parameters Displayed
- Common languages supported.



Keypad Operation

-  Used to display real-time information, to access and exit parameter edit mode and to store parameter changes.
-  Used to increase speed in real-time mode or to increase parameter values in parameter edit mode.
-  Used to decrease speed in real-time mode or to decrease parameter values in parameter edit mode
-  Used to reset a tripped drive.
When in Keypad mode is used to Stop a running drive.
-  When in keypad mode, used to Start a stopped drive or to reverse the direction of rotation if bi-directional keypad mode is enabled
-  Hand mode, places drive directly under keypad control
-  Auto mode, places drive under auto control configured by P1-13.
Normally set to BMS control.



Communications Interface

On board interfaces for

- BACnet MS/TP
- Modbus RTU

Optional Plug in interfaces for:

BACnet IP



EtherCat



DeviceNet



Profibus DPV1



Modbus TCP



EtherCat



ProfiNet



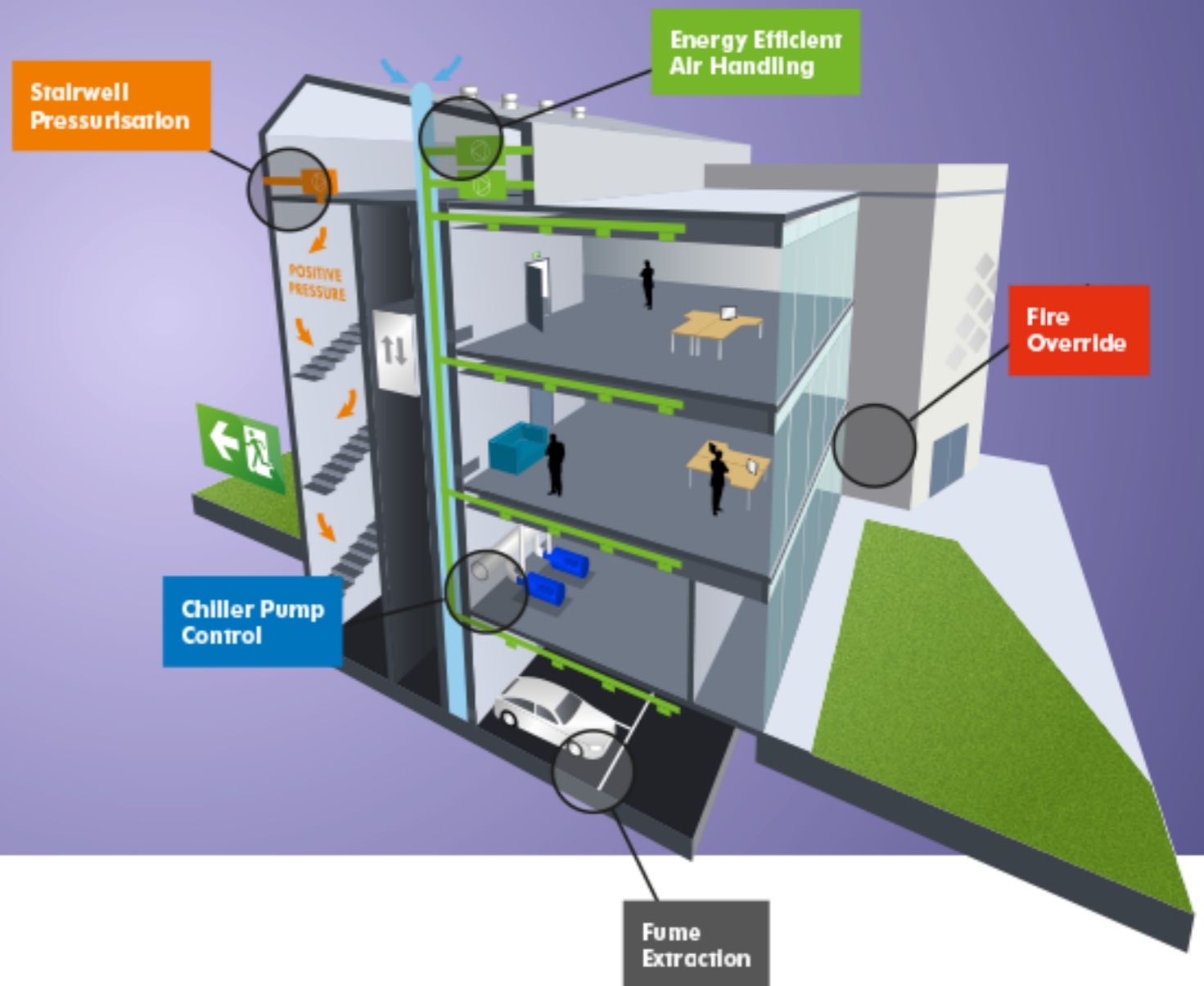
Diagnostics

Service Indicators and Procedures

- Settable Service Interval parameter for routine drive or system maintenance alerts.
- Read Only 'Time to Service' parameter in diagnostics menu
- Displayed flashing service indicator on OLED display when service is due.
- Drive outputs configurable for service due indication
- Simple Service 'reset' procedure
- Invertek recommended drive service procedure and checks published for increased product life.



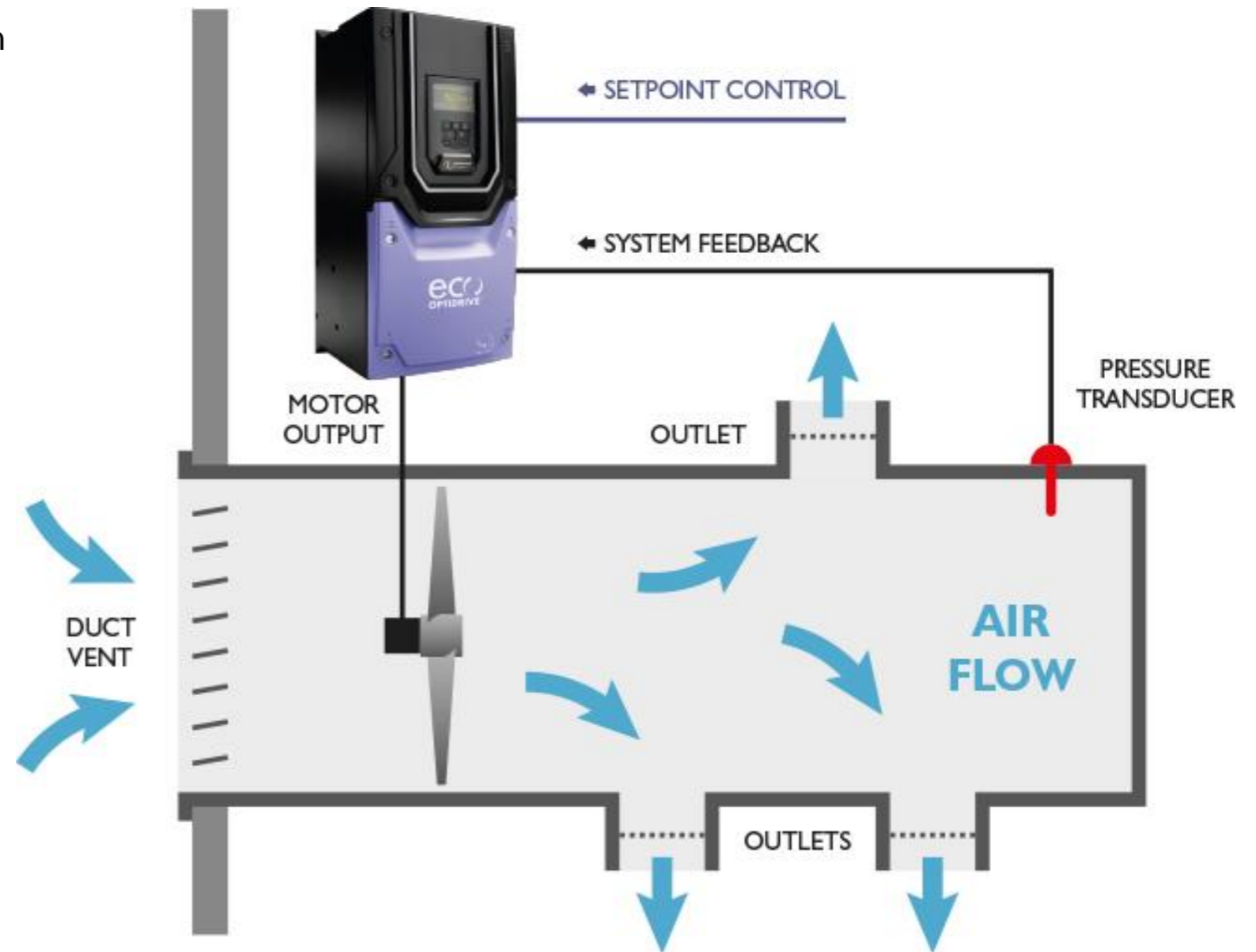
Energy Efficient... Dedicated Fan & Pump Control



Controlling Your HVAC System

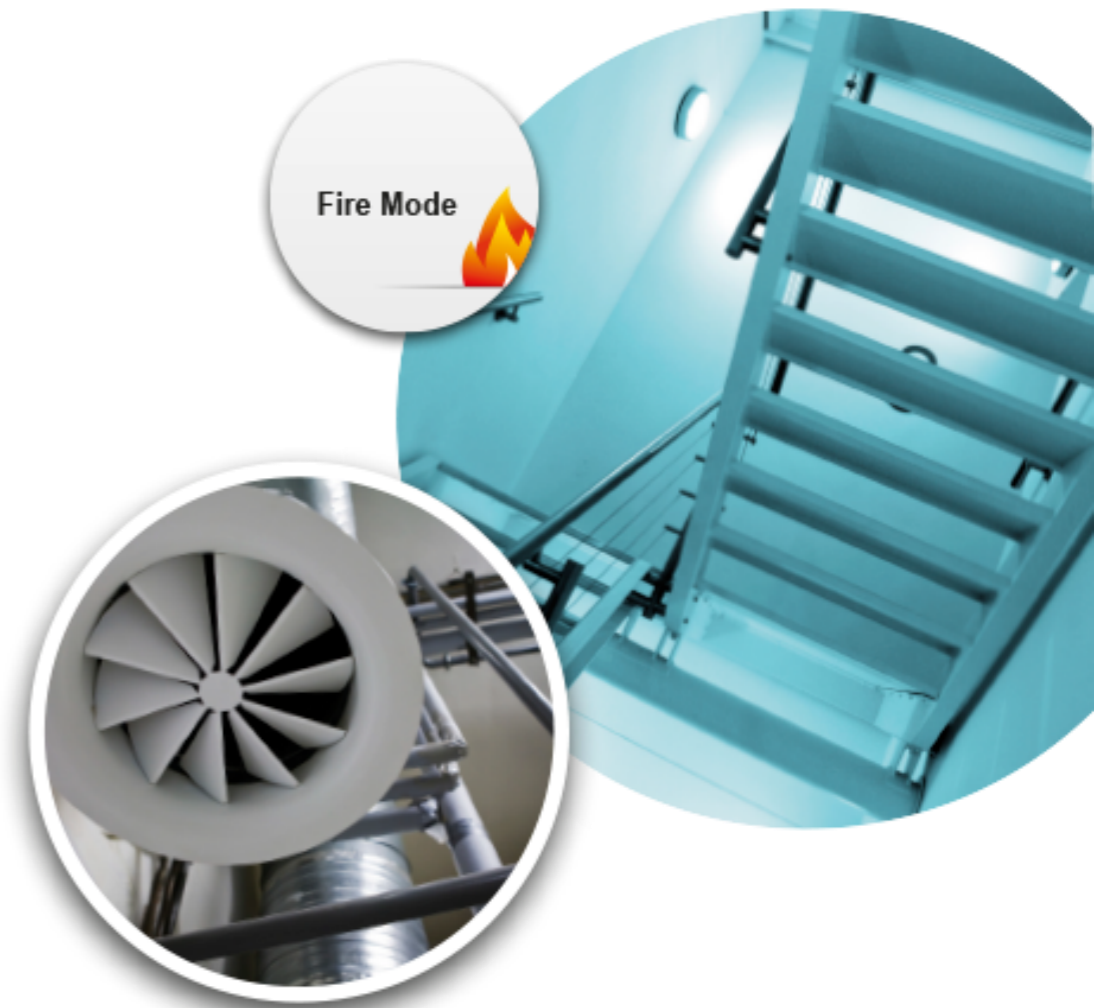
Airflow can be automatically controlled based on

- Flow
- Pressure
- Differential Pressure
- CO2
- Etc...



Fire Mode Operation

- Drive tries to maintain operational status regardless of inputs (excluding fire mode input) and none critical trip conditions
- Fire (Fire Mode) is shown on drive display when fire mode is active
- Drive output relays configurable for indicating drive is in Fire mode
- Trips Ignored by Fire Mode:
 - Over-temperature, Under-temperature, Thermistor fault, External trip, 4-20mA fault, Phase imbalance, Phase loss, Comms Loss, Accumulated Overload Trip
- Trips requiring automatic reset:
 - Under-Voltage, Over-Voltage, Fast Over-current, Instantaneous Over-Current, Output stage fault
- Used for smoke extraction systems and stairwell pressurization



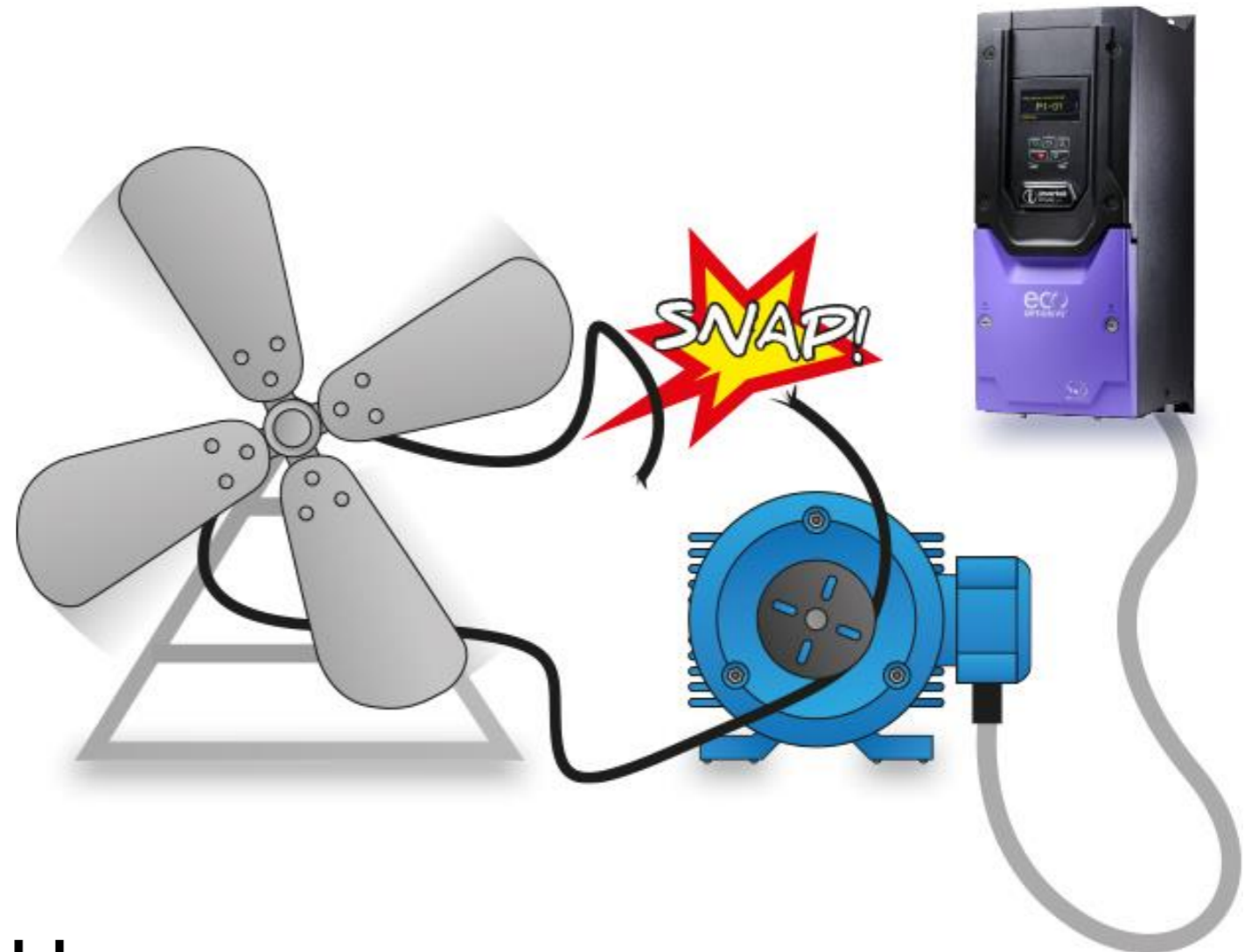
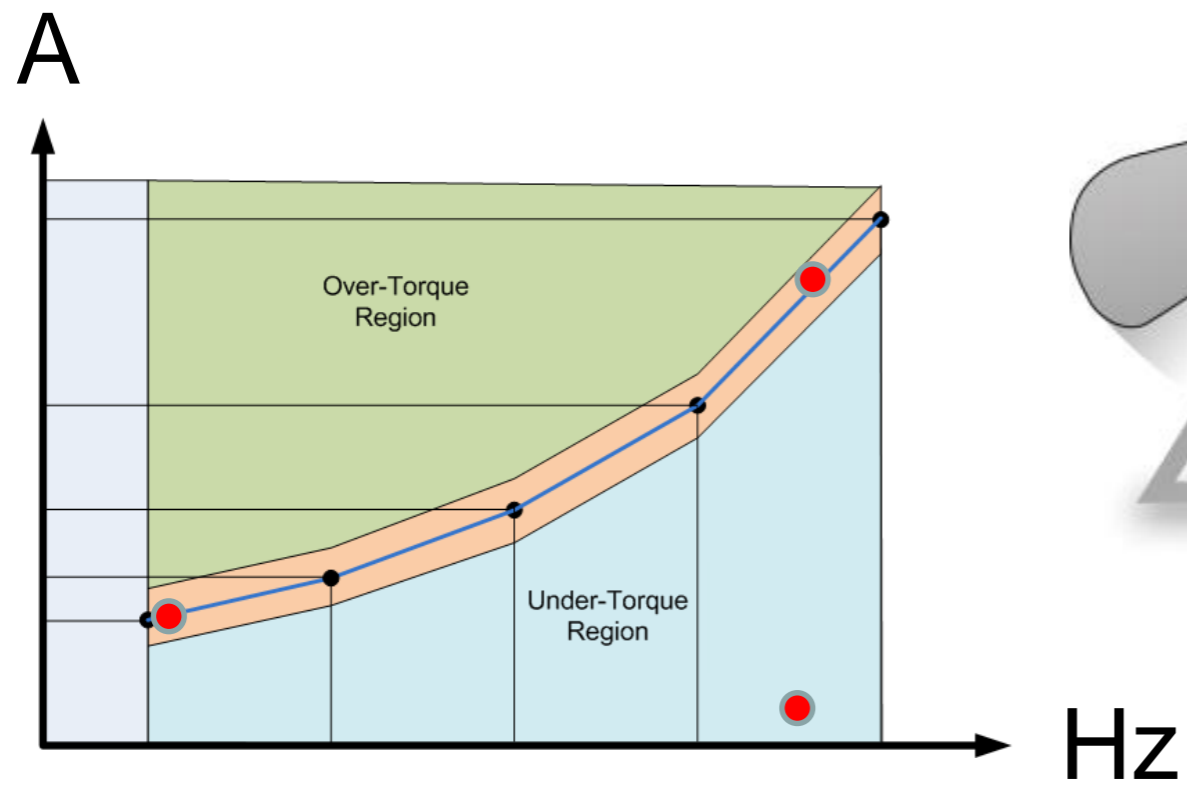
Fan Belt Break Detection

- Uses the Torque detection function to monitor output speed verses current and to compare this to the standard operating profile
- When an under-torque condition is detected the drive is programmed to trip (display shows Under-Torque).
- Drive relay can be configured to indicate drive trip status
- Fan belt break is immediately detected and down time is minimised.



Fan Broken Belt Detection

- Stop
- Run
- Under-Torque



PID Sleep / Standby Function

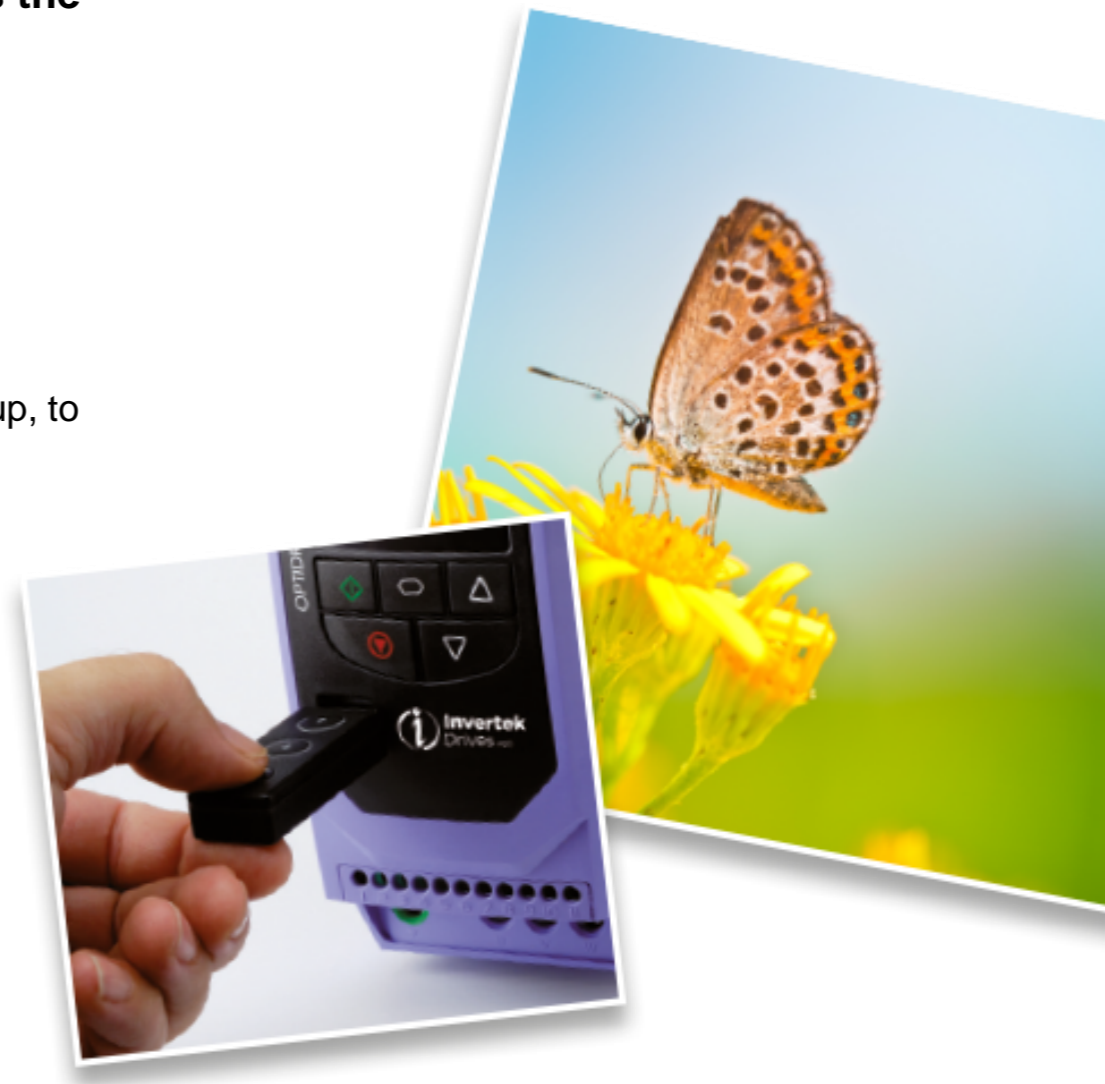
- The drive has an internal PID that can be used to modulate the motor speed to control pressure, temperature, flow etc.
- To maximise on energy saving and prevent situations like pumping a dead head, a Sleep / Standby mode is available
- The drive enters standby/sleep mode when enabled if the motor frequency/speed is at or below the 'standby speed threshold' for the time set in 'Standby Timer'
- In Standby/Sleep Mode, the display shows 'Standby'
- In PID Mode, the drive 'wake-up' is configured based on the PID Error – the difference between the setpoint and the actual feedback



PID Boost

When operating in PID control, a pre boost function allows the drive to operate at a fixed speed for a preset time prior to entering sleep mode. This prevents the drive continually cycling in and out of sleep mode, increases the sleep time and hence energy savings

- P6-11 Sets the time that the drive will operate at fixed speed for on starting
 - 0.0 – 250.0 Seconds Range
- Drive operates at Preset Speed 7 (P2-07) during this time
- The drive can also be programmed to restart at a fixed speed for a fixed time on wake up, to allow the PID control to adjust
- P6-12 Sets the time that the drive will operate at fixed speed for before stopping
 - 0.0 – 250.0 Seconds Range
- Drive operates at Preset Speed 7 (P2-08) during this time



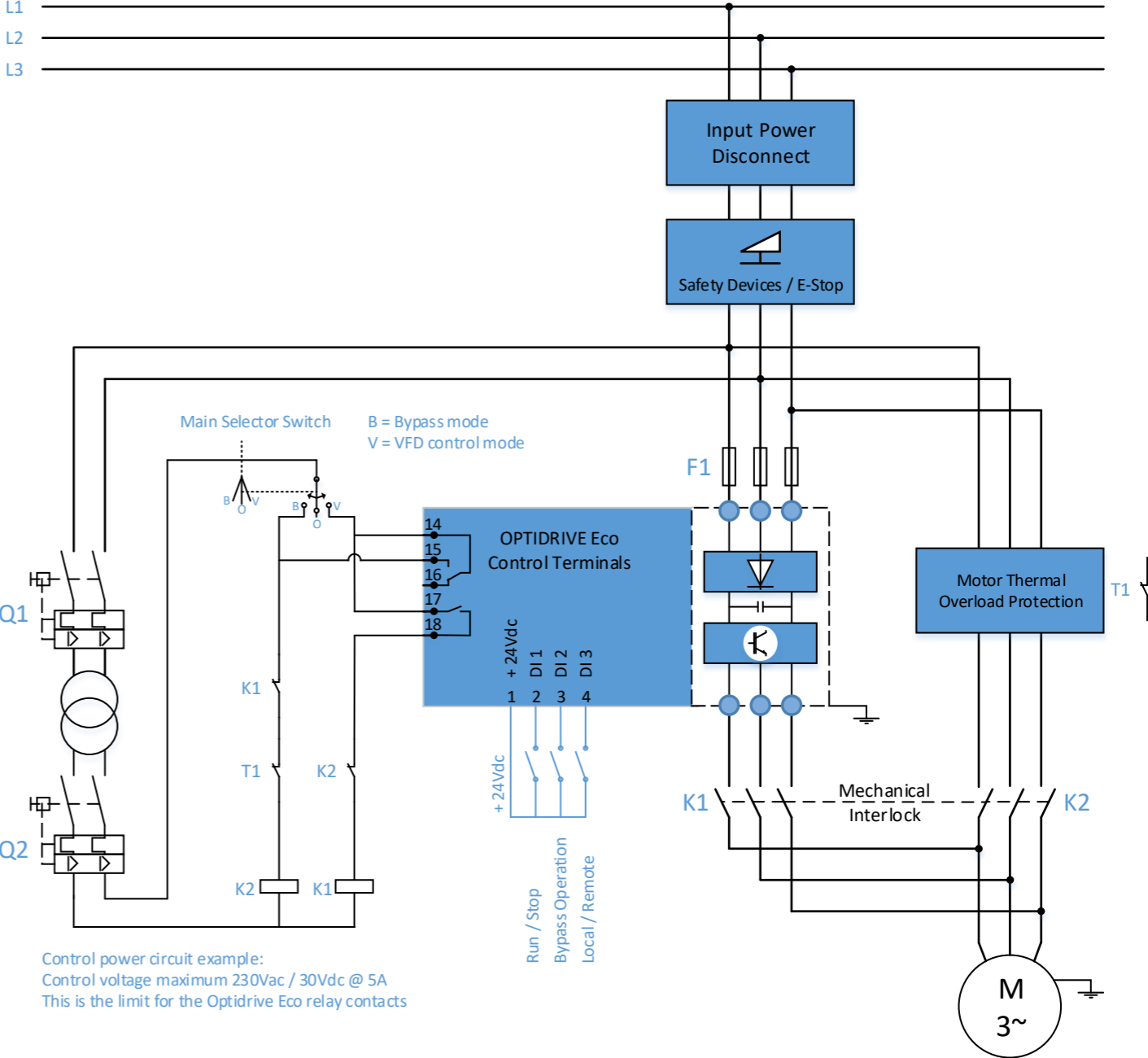
Bypass Control

Eco Bypass Controller:

When under Eco control bypass contactor can be automatically selected when:

- An assigned bypass input is enabled
- Fire mode is activated
- The drive trips

Drive relays 1 and 2 automatically configured when bypass mode enabled.



Thank you

