

VLT

Australian tax office use VLT® HVAC Drive with BACnet to ensure economy and comfort

The fact that Danfoss Drives now has BTL approval for the BACnet option for VLT® HVAC Drive is a solid reason for the successful implementation of 27 VLT® HVAC Drives in the Tax Office at Mt Gravatt.

The building has 27 Danfoss frequency converters with BACnet connected to the Allerton BMS controller. A great feature of the new VLT® HVAC Drive is its physical size. A smaller foot print means easier installation.

Also with its very simplistic award winning LCP display you only have to change very few parameters in the drive to activate the BACnet communication card saving a lot more time and money to the installation. The customer can choose to have the energy consumption divided into hours, days or weeks. The drive has a built in AEO (Automatic Energy Optimisation) function which increases energy efficiency by 5-15% at partial load.

Rely on Danfoss HVAC experience

Danfoss has unequalled experience in advanced drive technologies for HVAC applications. This experience was used to optimise features in the VLT® HVAC Drive and make it the perfect match for pumps, fans and water chillers (compressors) in buildings fitted with sophisticated HVAC solutions.



The upgrade in question was performed with the help of Finn Air as the mechanical contractor and Leading Edge as the controls company.

Contact:

David Layton, Danfoss Australia



VLT® BACnet MCA 109



The VLT® HVAC Drive integrates and communicates seamlessly with all HVAC devices, mastered by Building Management Systems via the BACnet protocol. HVAC specific features make it economical, flexible and user friendly and makes HVAC operation child's play.

Lowest cost of ownership

The modular concept allows you to pay only for features you need and to customise your solutions and minimise system costs. The HVAC Drive is maintenance free and still compact although everything is built in. The IP20 version can be mounted in an HVAC unit or panel. The high protected IP 66 version for harsh environments can be mounted anywhere.

thermal condition (thermistor or ETR), mains phase loss, live zero, Broken Belt, No Flow, Dry Pump, End of Curve etc.

Read multiple points in a telegram

With the BACnet option DDC controllers can read or write multiple points in one telegram. This helps to reduce network traffic which improves network bandwidth and the effectiveness of the BACnet network. It provides the ability to transfer all required points of the VLT® HVAC Drive in one request. This is especially useful if the BMS regularly creates a "back-up" of the system.

The VLT® BACnet option is a plug-and-play solution that optimises the use of VLT® HVAC Drive together with building management systems using the BACnet® fieldbus.

The option makes it easy to control or monitor points required in typical HVAC applications.

Improve system performance

VLT® HVAC Drive uses limited network bandwidth, and it requires less resources in the DDC controller due to the support of alarm and event notification. This can reduce traffic by more than 50% compared to other drives.

For VLT® HVAC Drive it is possible to read all analogue inputs and control all the analogue outputs on I/O options.

This means that when integrating a



VLT® HVAC Drive into the control system it is possible to save more physical I/O points. VLT® HVAC Drive has objects defined to accept 3 separate feedbacks transmitted over BACnet.

Detailed information about warnings and alarms

VLT® HVAC Drive has points giving detailed information about alarms and warnings. DDC controllers can monitor these and see when an alarm or warning occurs and see why it's occurred.

Examples: Earth fault, short circuit, over current, motor phase loss, motor

| Features | Benefits |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> The real time clock may be synchronised with the system master via BACnet | <ul style="list-style-type: none"> No need for a battery that needs eventual replacement |
| <ul style="list-style-type: none"> HVAC devices named by location | <ul style="list-style-type: none"> Time saved at servicing |
| <ul style="list-style-type: none"> Warnings and alarms come with explanatory text | <ul style="list-style-type: none"> No need to translate a number into a text via a manual |
| <ul style="list-style-type: none"> Broad range of services implemented | <ul style="list-style-type: none"> Less load on the network, faster response |
| <ul style="list-style-type: none"> Reads all analogue inputs | <ul style="list-style-type: none"> Reduces the need for additional I/O devices reduces the physical space needed. |
| <ul style="list-style-type: none"> Controls all the analogue outputs on I/O options | <ul style="list-style-type: none"> Less installation cost |
| <ul style="list-style-type: none"> Accepts 3 separate feedbacks transmitted over BACnet | <ul style="list-style-type: none"> Reduces cabling cost |
| <ul style="list-style-type: none"> Special HVAC functions built in the VLT® HVAC Drive | <ul style="list-style-type: none"> Saves capacity on the BACnet, smaller BMS controller can be used |
| <ul style="list-style-type: none"> Read or write multiple points in one telegram | <ul style="list-style-type: none"> Can transfer required points of the VLT® HVAC Drive in one telegram. Improves system performance |

Simultaneous synchronisation of built-in clocks.

VLT® HVAC Drives have a built-in clock that can be synchronized with the BMS network clock via BACnet. This eliminates a major problem on drives with battery backed-up stand alone real-time clocks which must be manually updated.

Built in and tested from factory

The Danfoss BACnet option is available factory installed and tested or can be added to the VLT® HVAC Drive as a field installed upgrade in existing installations.

| Number of objects supported | |
|-----------------------------|-----|
| Digital inputs | 16 |
| Digital outputs | 32 |
| Digital Values | 200 |
| Analogue inputs | 7 |
| Analogue outputs | 7 |
| Analogue values | 46 |
| Multistate output | 1 |
| Multistate input | 1 |
| Total | 310 |



Listed by BTL

The VLT® BACnet solution is listed by BTL Testing Laboratory.



BACnet Interoperability Building Blocks Supported

| | |
|------------------------------------------------|-------------|
| Data Sharing-ReadProperty-B | (DS-RP-B) |
| Data Sharing-ReadPropertyMultiple-B | (DS-RPM-B) |
| Data Sharing-WriteProperty-B | (DS-WP-B) |
| Data Sharing-WritePropertyMultiple-B | (DS-WPM-B) |
| Alarm and Event-ACK-B | (AE-ACK-B) |
| Alarm and Event-Notification Internal-B | (AE-N-I-B) |
| Alarm and Event-Information-B | (AE-INFO-B) |
| Device Management-Dynamic Device Binding-A | (DM-DDB-A) |
| Device Management-Dynamic Device Binding-B | (DM-DDB-B) |
| Device Management-Dynamic Object Binding-B | (DM-DOB-B) |
| Device Management-DeviceCommunicationControl-B | (DM-DCC-B) |
| Device Management-TimeSynchronization-B | (DM-TS-B) |
| Device Management-ReinitializeDevice-B | (DM-RD-B) |

Standard object types supported:

- Analogue input**
- Analogue output**
- Analogue value**
- Binary input**
- Binary output**
- Binary value**
- Device**
- File**
- Multi-state output**
- Notification class**

To study the Danfoss compliance, look under:

<http://bacnetassociation.org/BMAProductCatalog/Danfoss/>

Danfoss can accept no responsibility for possible errors in catalogue, brochure and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without any sequential change being necessary in specifications already agreed. All trademarks in this material are property of their respective companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.