Velbus driver suite for Control4

Introduction

This suite of drivers enables bi-directional integration of a Velbus system with Control4, supporting the following features:-

• Switched / Dimmed lights
• Relays
• Digital Inputs (Contact sensors, PIR Motion Sensors and various third party sensors)
• Thermostats
• Motor Control / Blinds / Windows

It is recommended that this driver is used on systems running OS3.2 or later.

Installation

The driver suite consists of a number of files. The comms driver provides all communication with the Velbus system, and this is then complemented by a number of proxy drivers that provide the user functionality for all required Velbus elements. Each of these proxy drivers represents a physical Velbus module, and provides functionality for Control4 to access all supported features in the module - this could include multiple digital inputs, relay outputs, sensors etc

Copy all these files from the zip package to your Control4 driver location (by default this is Documents4). Open Composer and choose the Search tab from the Items pane.

Adding the Comms Driver to your Project

Add the driver entitled "Velbus TCP Gateway" into your project. This provides communication with the Velbus system and only a single instance of this driver is required.

In the System Design view, select the Velbus TCP Gateway driver to view the properties available for configuration. The driver supports unencrypted (TCP) and encrypted (SSL) connections. Select the appropriate connection method.

TCP connections

It is just required to enter the IP address

Properties	
Driver Version	0
Licence Key	EqV0wvI8zOjz/yX645/R57
Mac Address	000FFF1E29B5
Operational Mode	Licensed – Operational
Connection Method	TCP
IP Address	192.168.9.103
TCP Connection Port	6000

SSL connections

It is necessary to additionally enter a TLS Token.
This is available from the TLS setput of the Velbus gateway.

Properties	
Driver Version	0
Licence Key	EqV0wvI8zOjz/yX645/R576BE2OMa4g/c
Mac Address	000FFF1E29B5
Operational Mode	Licensed – Disconnected
Connection Method	SSL/TLS
TLS Token	xxxxxxxx-xxxx-xxxx-84d7-9df51c3ac8d9
IP Address	192.168.1.2
TCP Connection Port	9513

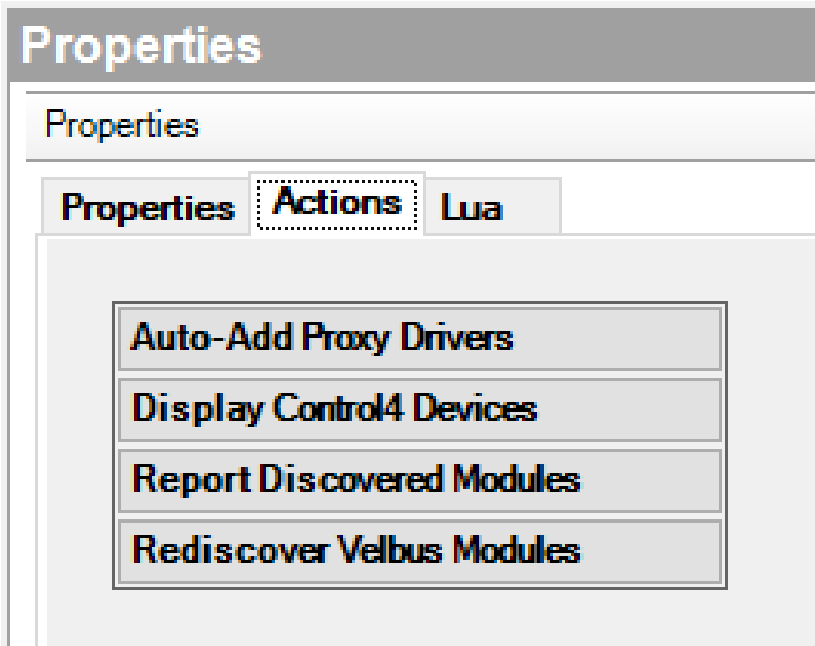## *Adding Velbus® modules*

Having configured the driver, Control4 will then connect and interrogate the Velbus configuration.

Additionally the driver is licensed. This license key is locked to the MAC address of the Control4 processor. The required license key can be purchased from the Janus Technology website (http://www.janustechnology.co.uk). If a license key is not entered, the driver will run in demo mode for a period of 6 hours; to extend the demo, simply reboot the Control4 processor.

On the driver Actions tab there are the following Actions that are used to complete the integration of a Velbus® and for diagnostic purposes:-


- Auto-Add Proxy Drivers - automatically adds proxy drivers for all Velbus modules that haven't yet been added to the Control4 project
- Rediscover Velbus Modules - re-runs the discovery process (useful if Velbus system is reconfigured and you're not sure whether Control4 has discovered everything correctly)

- Display Discovered Velbus Modules - prints (to the lua window) a list of all the Velbus modules that have been discovered

- Display Control4 Devices - prints (to the lua window) a list of all the Control proxy drivers that have been installed and their associated Velbus modules

Velbus driver suite for Control4

Adding the Proxy Drivers to your Project

Each Velbus module has an associated Control4 proxy driver. The simplest way to install these is to use the "Auto-Add Proxy Drivers" Action. This scans your project to discover which Velbus modules already have drivers installed, and then adds drivers for all remaining modules. This Action creates a new Site in the project file (called Velbus) and adds all the drivers to a Velbus room (this is necessary since the Velbus project doesn't contain any location information). The modules are named according to the Velbus module name (as configured in the VelbusLink software) and prefixed by address for easy identification. Additionally the drivers are configured with correct parameters It is then an easy task for the installer to simply drag the drivers to the appropriate room in the Control4 project.
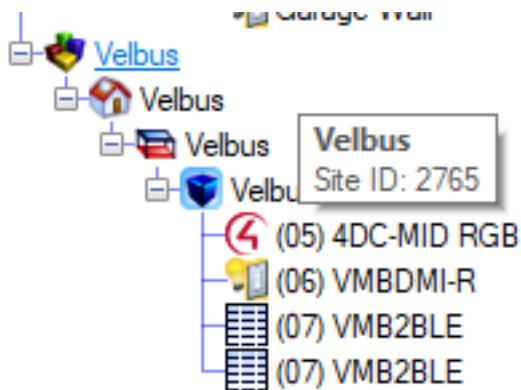
IMPORTANT NOTE

 the process of adding drivers to the project automatically imposes a significant load on Composer and may become unresponsive whilst this occurs. Please be patient - on a large system it may take 5-10 minutes (go and have a coffee !)

In most cases a single driver is installed which includes the relevant Control4 UI proxy. There are two exceptions to this
* VMB4DC - this is a 4 channel dimmer. To provide flexibility for use with different types of lighting or actuator control (single dimmer, tunable white, RGB, RGBW) the VMB4DC driver is proxyless, and provides connections to separate proxy drivers (further details below) * VMB2BLE - this is a module for controlling 2 shades/blinds. The Control4 driver is for a single blind, together with a channel selector. Consequently, when auto-added, 2 instances are created

Alternatively, the proxy drivers can be installed manually in the usual manner. Each driver has a Dynamic list property "Velbus Module Selection", where you can select the appropriate Velbus module to control. This list is only populated with compatible device types - simplifying the configuration process (e.g. a VMBGPOD module only allows selection from all discovered VMB2GPOD OLED display modules).

Velbus Module Selection		None Selected (05) VMBGPOD - Touch Panel with OLED Display (18) VMBGPOD - O- Back Bedroom (2C) VMBGPOD - Touch Panel with OLED Display 27
Min Setpoint (C)		
Max Setpoint (C)		

Each proxy driver includes a Control CONNECTION that needs to be bound to the Comms driver - this should happen automatically, so there is no need for the installer to do this.

Control & Audio Video Connections

(01) VMB8PBU

Name	Type	Connection	Input/Output	Connected To
Control Inputs				
Velbus Comms	Control	VELBUS_DEVICES	Input	Velbus TCP Gateway -
Control Outputs				
Push button 1	Control	CONTACT_SENSOR	Output	
Push button 2	Control	CONTACT_SENSOR	Output	
Push button 3	Control	CONTACT_SENSOR	Output	
Push button 4	Control	CONTACT_SENSOR	Output	
Push button 5	Control	CONTACT_SENSOR	Output	
Push button 6	Control	CONTACT_SENSOR	Output	

Filters: All Rooms ⌄ All Connections ⌄

Device	Name	Location
Velbus TCP Gateway - Local	Velbus Devices	Velbus Local

The following sections detail the drivers for the Velbus module. Not every module is described in detail, as there is a lot of commonality between modules. However, the key features are described and how they interact with the Control4 experience.

Note that where possible, the module connections as they appear in Control4 are named according to the VelbusLink configuration.
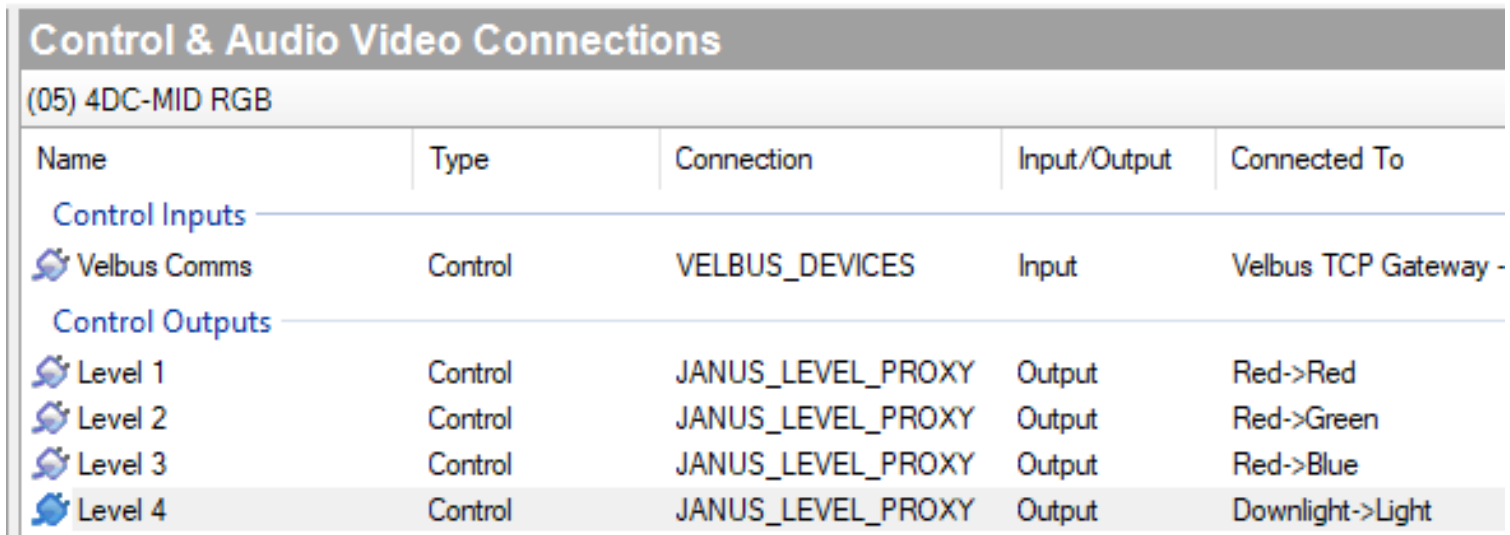
Lighting Proxies

The VMBDMIR module is a single channel dimmer and the module driver includes the lightV2 proxy interface. However, the VMB4DC is a 4-channel device. This could be used to drive 4 independant lights or actuators, but also could be used for Tunable white (2 channels) or RGB (3 channels) / RGBW (4 channels). To provide flexibility in usage and to simplify the installation processes, we provide separate light proxy drivers that can be connected to VMB4DC according to the type of lights installed. The following proxy drivers are supplied

`velbus_lightProxy.c4z` - single channel dimmer
`velbus_lightProxy_TW.c4z` - two channel dimmer for tunable white lights
`velbus_lightProxy_RGB.c4z` - three channel dimmer for RGB lights
`velbus_lightProxy_RGBW.c4z` - four channel dimmer for RGBW lights

Additionally, a proxy driver is provided that can be connected to any relay output, enabling that relay to appear as a switched lighting load

`velbus_lightProxy_Relay.c4z` - single channel dimmer for RGBW lights

For example, the image below shows a VMB4DC module driving an RGB strip (3 channels) plus a single downlight (1 channel).

All light drivers are based off the Control4 `lightv2` proxy and are fully compatible with Advanced Lighting Scenes (ALS).

Relay Proxy

A number of modules provide relay output functionality. According to the module type, one (or more) RELAY connections are provided that can then be made to the appropriate Control4 UI element according to the controlled device type. These relay outputs may be physical outputs, or virtual. the image below shows a VMB1RYNO module with 1 physical relay output and 4 virtual ones

Control & Audio Video Connections

(f7) VMB1RYNO - Mini

Name	Type	Connection	Input/Output	Connected To
Control Inputs				
Velbus Comms	Control	VELBUS_DEVICES	Input	Velbus TCP Gateway
Control Outputs				
Relay 1	Control	RELAY	Output	
Curtains	Control	RELAY	Output	
Window	Control	RELAY	Output	
Virtual Relay 3	Control	RELAY	Output	
Virtual Relay 4	Control	RELAY	Output	

Contact Sensor Proxy

A number of modules provide contact input functionality. According to the module type, one (or more) CONTACT_SENSOR connections are provided that can then be made to the appropriate Control4 UI element according to the sensor type. For example, the connections for the VMBPIRM motion sensor are shown below - these 7 different sensor triggers that can be configured in the VelbusLink software according to light and motion activity.

Control & Audio Video Connections

(f5) VMBPIRM - mini

Name	Type	Connection	Input/Output	Connected To
Control Inputs				
Velbus Comms	Control	VELBUS_DEVICES	Input	Velbus TCP Gateway
Control Outputs				
Dark	Control	CONTACT_SENSOR	Output	
Light	Control	CONTACT_SENSOR	Output	
Motion 1	Control	CONTACT_SENSOR	Output	
Motion 1 (LD)	Control	CONTACT_SENSOR	Output	
Motion 2	Control	CONTACT_SENSOR	Output	
Motion 2 (LD)	Control	CONTACT_SENSOR	Output	
Absence	Control	CONTACT_SENSOR	Output	

BUTTON_LINK

A number of modules provide keypad-type functionality - where the input connection is typically used for providing user push-button input, rather than acting as an input contact sensor. These connections are modeled as BUTTON_LINK connections in Composer to allow the installer to hook these up to BUTTON_LINK triggers for easy programming in Composer (e.g. by making a connection to the Room Control driver). Some modules may contain a mix of BUTTON_LINK (for user push button events) and CONTACT_SENSOR (for triggers / alarms from connected equipment). The image below illustrates this for the VMBELO module.

Control & Audio Video Connections

Thermostat 2

Name	Type	Connection	Input/Output	Connected To
Control Inputs				
Velbus Comms	Control	VELBUS_DEVICES	Input	Velbus TCP Gateway
Yellow Flash	Control	BUTTON_LINK	Input	
EL_2 OP	Control	BUTTON_LINK	Input	
VMBDMI-Slow	Control	BUTTON_LINK	Input	
VMBDMI Atmos	Control	BUTTON_LINK	Input	
Int Timer	Control	BUTTON_LINK	Input	
Push button 6	Control	BUTTON_LINK	Input	
Push button 7	Control	BUTTON_LINK	Input	
Push button 8	Control	BUTTON_LINK	Input	
Push button 25	Control	BUTTON_LINK	Input	
Push button 26	Control	BUTTON_LINK	Input	
Push button 27	Control	BUTTON_LINK	Input	
Push button 28	Control	BUTTON_LINK	Input	
Push button 29	Control	BUTTON_LINK	Input	
Push button 30	Control	BUTTON_LINK	Input	
Push button 31	Control	BUTTON_LINK	Input	
Push button 32	Control	BUTTON_LINK	Input	
Control Outputs				
Temperature	Control	TEMPERATURE_VAL...	Output	
Heater	Control	CONTACT_SENSOR	Output	
Boost	Control	CONTACT_SENSOR	Output	
Pump	Control	CONTACT_SENSOR	Output	
Cooler	Control	CONTACT_SENSOR	Output	
Alarm 1	Control	CONTACT_SENSOR	Output	
Alarm 2	Control	CONTACT_SENSOR	Output	
Alarm 3	Control	CONTACT_SENSOR	Output	
Alarm 4	Control	CONTACT_SENSOR	Output	
Relay	Control	RELAY	Output	

Thermostat Proxy

This integration requires some explanation regarding the necessary operational constraints.

First it is important to understand the controls from a Velbus perspective - the following options are present from the Velbus stat:- - Comfort, Day, Night, Protect are in-built presets with temperatures that are configured in VelbusLink - The thermostat supports heating and cooling modes - these are selected in VelbusLink and can also be accessed from options within the GlassPanel, or triggered from programming

In order to align the user experiences on Velbus and Control4, the Control4 driver automatically creates named Presets to correspond with the eight Presets in Velbus. The temperature of the Preset setpoint cannot be adjusted from Control4 - it is simply recalling the predefined Preset in Velbus (however, note that it is possible to temporarily adjust the setpoint independently from the preset at any time).

The driver doesn't support an Automatic mode (where switching between heating and cooling occurs automatically according to current temperature and setpoint). Rather the driver allows for manual selection between Heat and Cool modes of operation. This is achieved from Control4 in two ways:-
- Select relevant PRESET - switch between Heat and Cool in the EXTRAs Tab in the Control4 UI

If an automatic mode is desired, then this would be created via programming in VelbusLink.
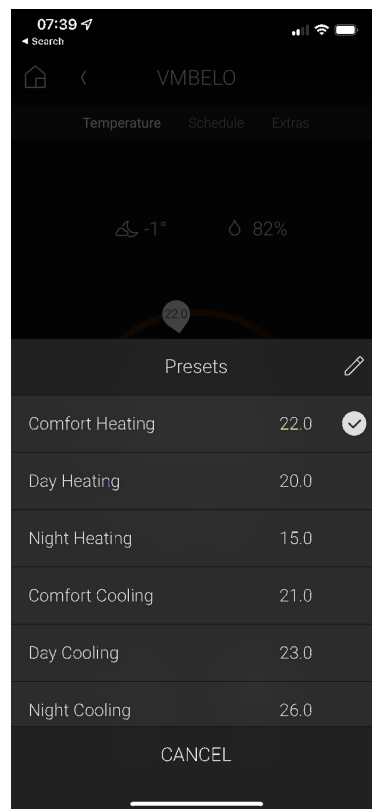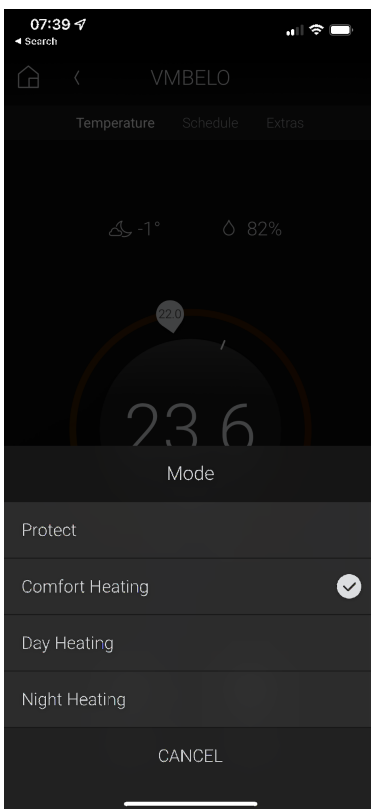
Glass Panel LED Control

The Glass Panel modules provide several programming commands for controlling LED status and text display.
Note that according to the Glass Panel module, there may be multiple pages of buttons (and hence LED states).
However, the Ambient colour state of the LEDs applies to the module in its inactive state..

- Set Display Ambient Backlight - this controls the LED colour displayed when feedback is inactive (*)
- Set Display Feedback Backlight - this controls the colour displayed when feedback is active (different colours for each feedback state) (*)
- Set Display LED State - this controls the feedback state of the button
- Clear (no feedback, ambient colour is displayed) (*)
- Set (continuous On)
- Slow Blink
- Fast Blink
- Very Fast Blink

- Set Memo Text - text message to be displayed on the Glass Panel (maximum 64 characters - scrolling text)
- Clear Memo Text

NOTE (*) Colour selection is only possible with Edge-lit Panels

Input Devices (VMB7IN / VMB4AN)

VMB7IN - the first four channels support 0V pulse inputs, with current and accumulated values.
If these are enabled in VelbusLink, the when the Control4 driver is added, it automatically creates variables to represent these values, which can then be used in programming.

VMB4AN - there are 4 input channels on this device, each supporting :

- 0v switching
- 0v pulses
- 10v signaling
- 4-20ma Sensors
- 2K ohm sensors

Input values can be mapped within Velbuslink to represent a value i.e. 8.7v = 45ºC Each channel also has a Status event, which is determined by the threshold set in one of the four modes. Mode 1 for channel 1 might have a threshold of 7V, after which the Status event shows as "Pressed". The four outputs of the VMB4AN are 10V signals, with functionality similar to a VMB4DC

FAQ

Troubleshooting

If you encounter any issues with the driver, please contact us at
http://www.janustechnology.co.uk/support, and we will be happy to assist however needed.