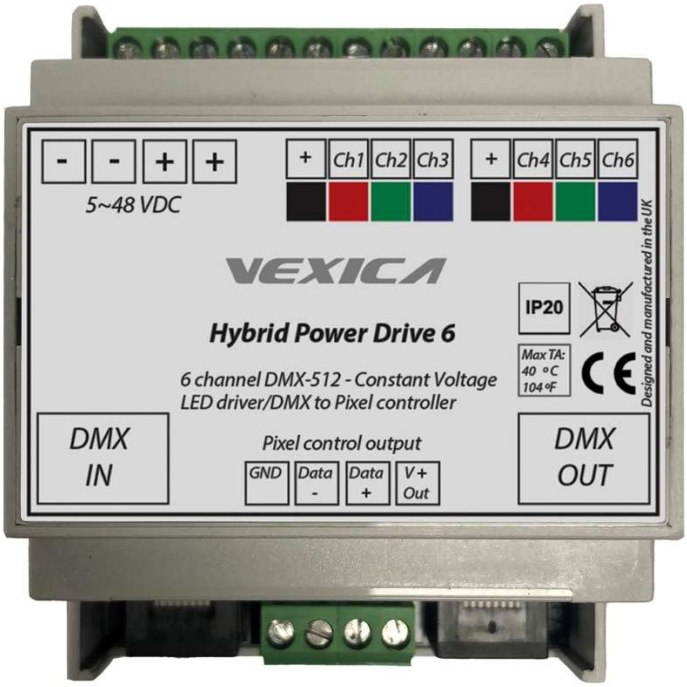
INSTALLATION GUIDE FOR

HYBRID DRIVE 6

VEX-HYBRID-DRIVE-6



Please ensure you have read the following instructions thoroughly

and can undertake the required actions before commencing installation.

If you have any queries, please consult the Vexica

Technical Support Department before proceeding.

DOCUMENT ID: 008254

Contents

Scope

This manual will detail the installation and use of a VEX-HYBRID-DRIVE-6 Driver

Revision History

Rev	Date	Comment	Author
A	16/06/19	Document created	JP
B	15/10/19	Added Use of VEXICA-DYNAMIC-RECEIVER	JP
C	28/03/23	Figures and VEXICA-DYNAMIC-RECEIVER wiring information updated	MA
D	02/08/23	Correction to Fig 5.	LG

Approved By

Person	Date	Signature
Technical Manager	02-08-23	LG

Overview

The Vex-Hybrid-Drive-6 is a 24VDC Din-rail mounted LED Driver; it can be used to provide both PWM and Pixel control both installations are covered below.

Figure 1

1	24VDC Input/Link Through
2	PWM Channels One to Three
3	PWM Channels Four to Six
4	RJ45 DMX Input
5	RJ45 DMX Output
6	Pixel Control Output

Table 1

MOUNTING:	35MM DIN RAIL
MATERIAL:	UL94-V0 PC
OVERALL DIMENSIONS:	90MM (L) X 71MM (W) X 58MM (H)
COUNTRY OF MANUFACTURE	UNITED KINGDOM
OPERATING TEMPERATURE	-10°C TO 35°C
STORAGE TEMPERATURE	-10°C TO +85°C
OPERATING RELATIVE HUMIDITY (MAX)	85% NON-CONDENSING
IP RATING	IP00 (INDOOR USE ONLY)
MAX CABLE CSA	0.2 TO 4.0MM (SOLID CORE) 0.2 - 2.5 MM (STRANDED)

Installation Instructions:

WARNING!
Risk of electrical shock. Disconnect power before servicing or installation.

Please read these instructions carefully before installation and make sure you fully understand them. Pay attention to how the Driver is wired. If you require any further guidance, please contact Vexica.

Powering the Vex-Hybrid-Drive-6

Connect the Vex-Hybrid-Drive-6 to a suitable 24VDC Power Supply using the terminals marked below (Figure 2). The Power Supply is dependent on the load (See Table 2).

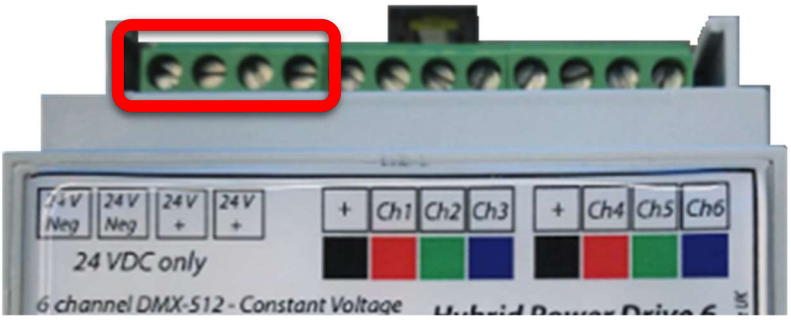


Figure 2

Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Total Current
6						6 Amps
6	6					12 Amps
4	4	4				12 Amps
3	3	3	3			12 Amps
2	2	2	2	2	2	12 Amps

Table 2

Installing PWM Controlled Lights

The Vex-Hybrid-Drive-6 has six PWM channels that can be controlled; they are rated to a maximum of 6A per channel but only under certain load conditions (refer to Table 2 for loading).

Using a standard Vexica 4-way Starter Cable (Part Number: 000746 Or 000908) to connect the PWM outputs on the Vex-Hybrid-Drive-6 follow the colour coding in Table 3. This will allow you to connect two chains of RGB fittings on one Driver with a maximum load of 2A per channel. The terminals are marked in Figure 3.

Starter Cable	VEX-HYBRID-DRIVE-6
BLACK	+
RED	Ch1
GREEN	CH2
BLUE	CH3
BLACK	+
RED	CH4
GREEN	CH5
BLUE	CH6

Table 3

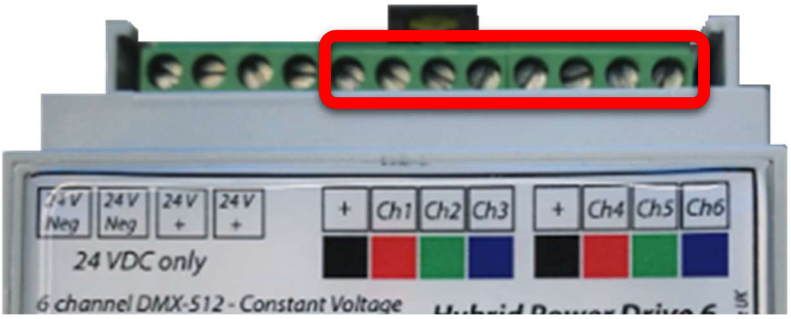


Figure 3

PIXEL Output

The Vex-Hybrid-Drive-6 can power up to 170 Dynamic LEDs from its Pixel output; the power is passed straight through from the input to ensure that an appropriate power supply is used.

Standard Wiring (Fittings less than One meter from Driver)

Using a 1m 3-way starter cable assembly (Part Number: 009122) to connect the Pixel Output on the Vex-Hybrid-Drive-6 follow the information in Table 4. The terminals are marked in Figure 4. Do not extend this cable without using a VEXICA-DYNAMIC-RECEIVER as described on Page 7.

Starter Cable	VEX-HYBRID-DRIVE6
BLACK	GND
WHITE	DATA +
RED	V+ Out

Table 4

Figure 4

One-meter starter cables from the Hybrid Drive 6 ***MUST*** have the White Data and the Black -24VDC wires twisted together as shown below in Figure 5 where possible to prevent any possible interference.

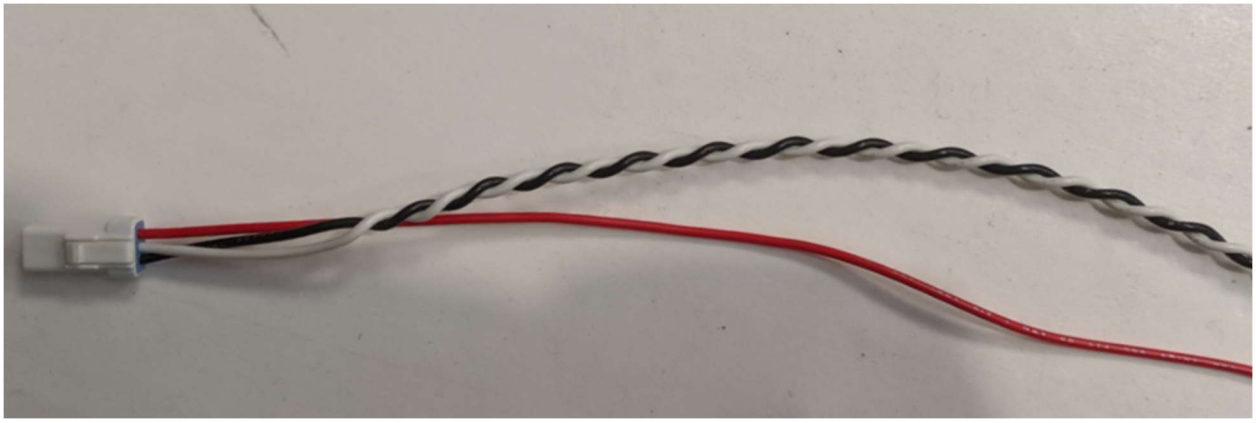


Figure 5

Extending Vexica Dynamic Starter Cables over one meter

Wiring Overview

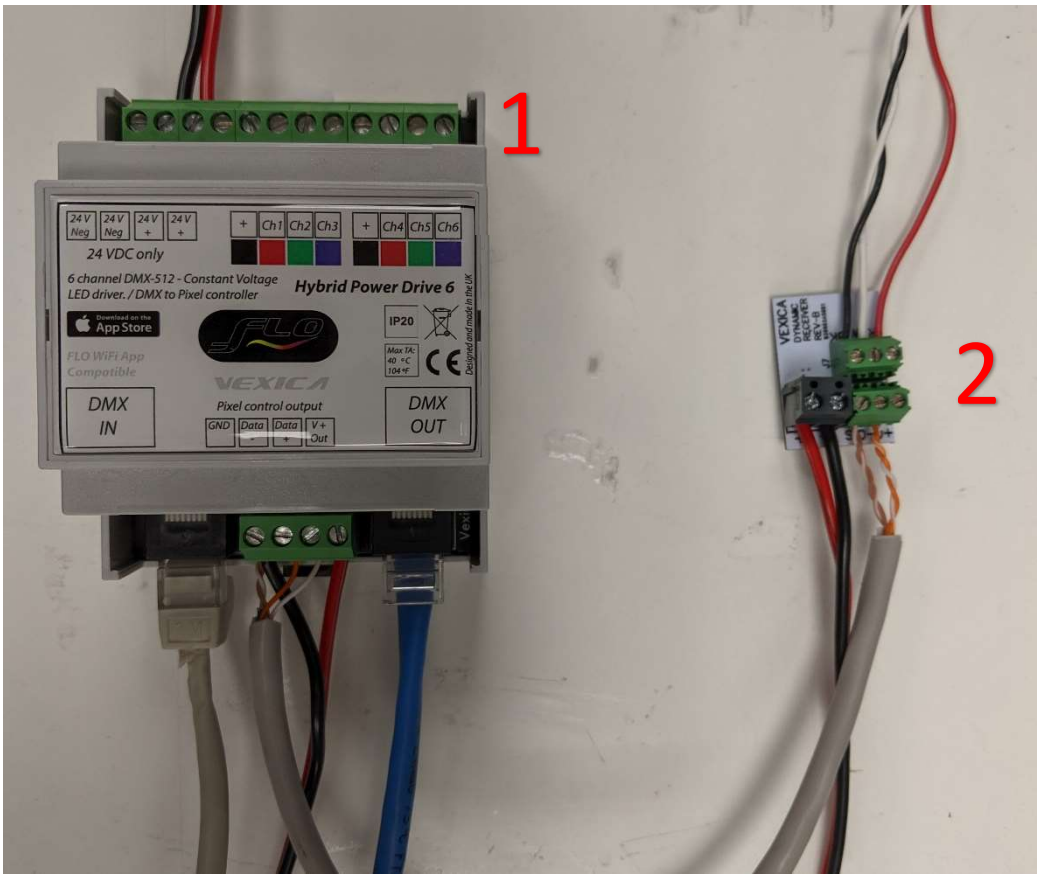


Figure 6

Number	Item	Page Number
1	VEX-HYBRID-DRIVE-6	8
2	VEXICA-DYNAMIC-RECEIVER	9

Table 5

Wiring VEX-HYBRID-DRIVE 6 With VEXICA-DYNAMIC-RECEIVER

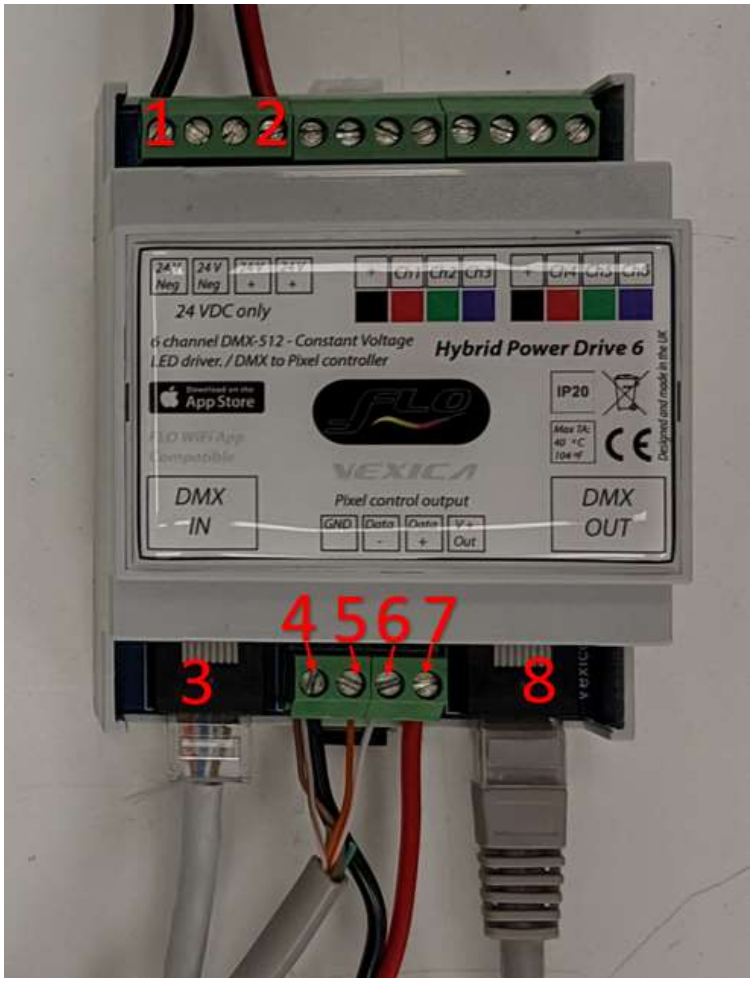


Figure 7

NUMBER	WIRE	WIRE COLOUR
1	-24VDC FROM PSU	BLACK
2	+24VDC FROM PSU	RED
3	CAT5/6 DATA CABLE FROM CONTROL SYSTEM	N/A
4	BROWN AND BROWN/WHITE PAIR OF CAT5/6 DATA CABLE TO VEXICA-DYNAMIC-RECEIVER AND BLACK 1.5MM CSA POWER CABLE TO VEXICA-DYNAMIC-RECEIVER	BROWN, BROWN/WHITE AND BLACK
5	ORANGE OF CAT5/6 DATA CABLE TO VEXICA-DYNAMIC-RECEIVER	ORANGE
6	ORANGE/WHITE OF CAT5/6 DATA CABLE TO VEXICA-DYNAMIC-RECEIVER	ORANGE/WHITE
7	RED 1.5MM CSA POWER CABLE TO VEXICA-DYNAMIC-RECEIVER	RED

8	CAT5/6 DATA CABLE TO NEXT VEX-HYBRID-DRIVE-6	N/A

Table 6

Wiring VEXICA-DYNAMIC-RECEIVER

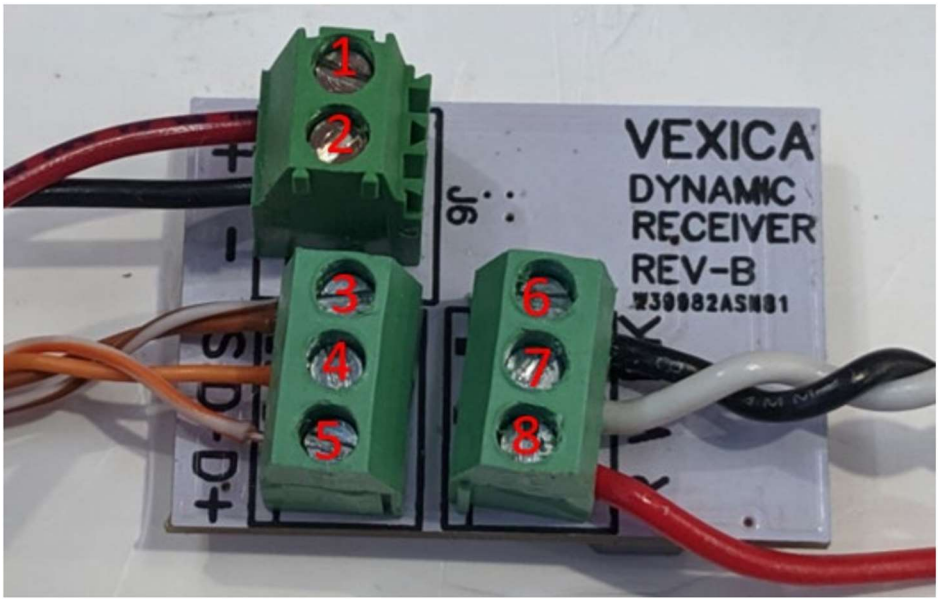


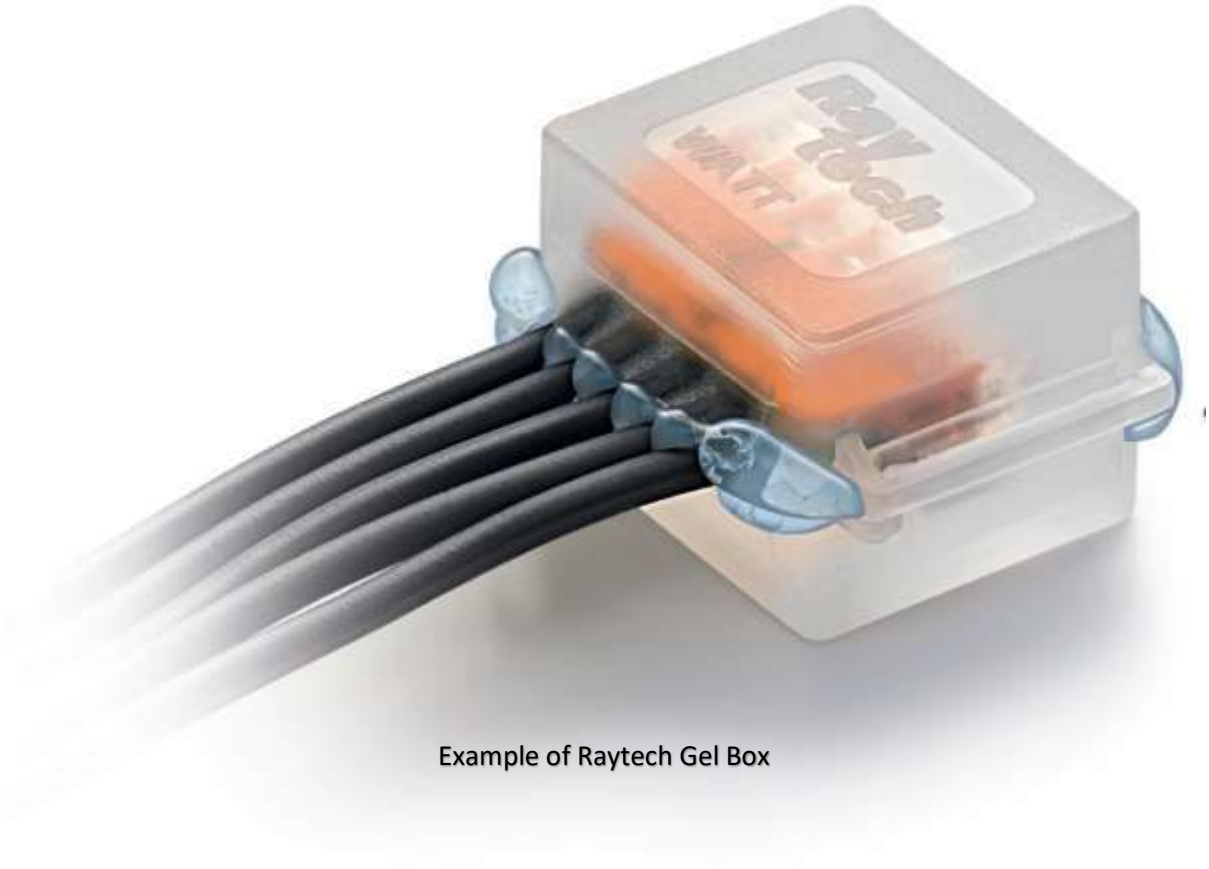
Figure 8

NUMBER	WIRE	WIRE COLOUR
1	+24 VDC 1.5MM CSA POWER CABLE FROM VEXHYBRID-DRIVE-6	BLACK
2	-24 VDC 1.5MM CSA POWER CABLE FROM VEXHYBRID-DRIVE-6	RED
3	BROWN AND BROWN/WHITE PAIR OF CAT5/6 DATA CABLE FROM VEX-HYBRID-DRIVE-6	BROWN AND BROWN/WHITE
4	ORANGE OF CAT5/6 DATA CABLE FROM VEXHYBRID-DRIVE-6	ORANGE
5	ORANGE/WHITE OF CAT5/6 DATA CABLE FROM VEX-HYBRID-DRIVE-6	ORANGE/WHITE
6	-24VDC TO FITTING (1m 3-WAY STARTER CABLE ASSEMBLY PART NUMBER: 009122)	BLACK
7	DATA TO FITTING (1m 3-WAY STARTER CABLE ASSEMBLY PART NUMBER: 009122)	WHITE
8	+24VDC TO FITTING (1m 3-WAY STARTER CABLE ASSEMBLY PART NUMBER: 009122)	RED

Table 7

VEXICA-DYNAMIC-RECEIVER Outdoor Use

To achieve the desired IP Rating precautions must be taken. To prevent water ingress, Vexica recommends using the Raytech Bar Gel Box (https://www.raytech.it/catalogo/en/gel-cover-line.pdf). When using this, all connections and cables must be adequately sealed inside the gel box.



Example of Raytech Gel Box

LED Control

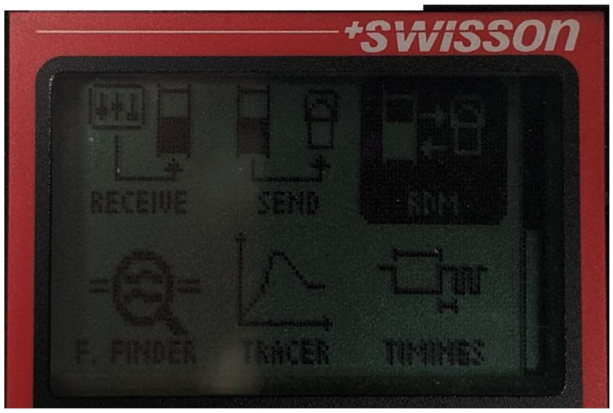
Addressing Drivers with RDM for PWM Output

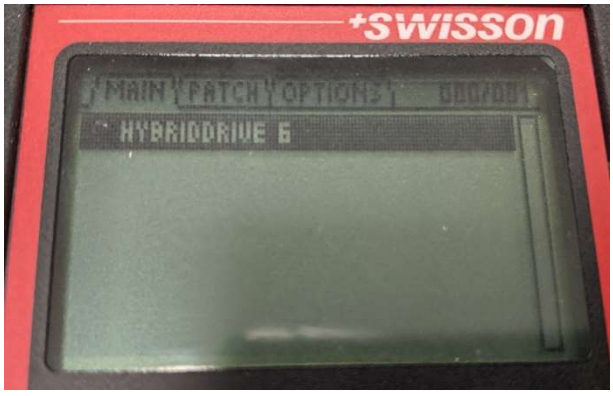
The drivers need to be addressed to work correctly; this can be done with a DMX testing tool such as the Swisson XMT-350.

NOTE: Certain RDM controllers may limit connected driver run length during addressing.

Power the VEX-HYBRID-DRIVE-6 and connect the Swisson XMT-350 to the DMX IN.

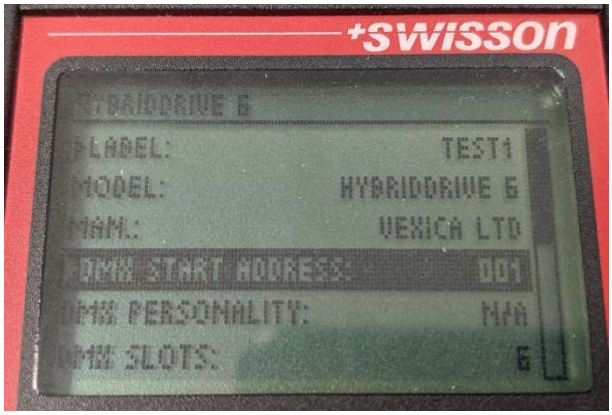
Using the arrows navigate to the RDM menu option and select it.

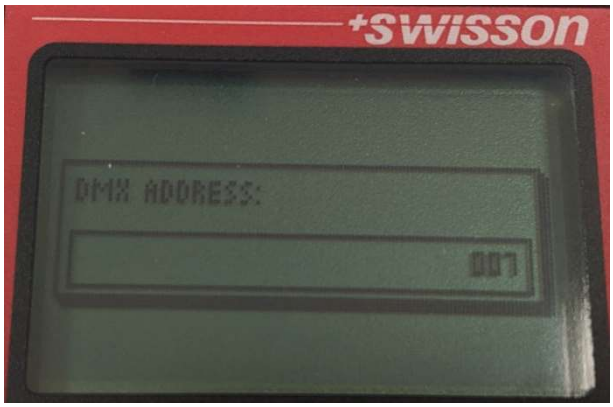




The Hybrid Drive 6 should be discovered.

Select the DMX START ADDRESS option.

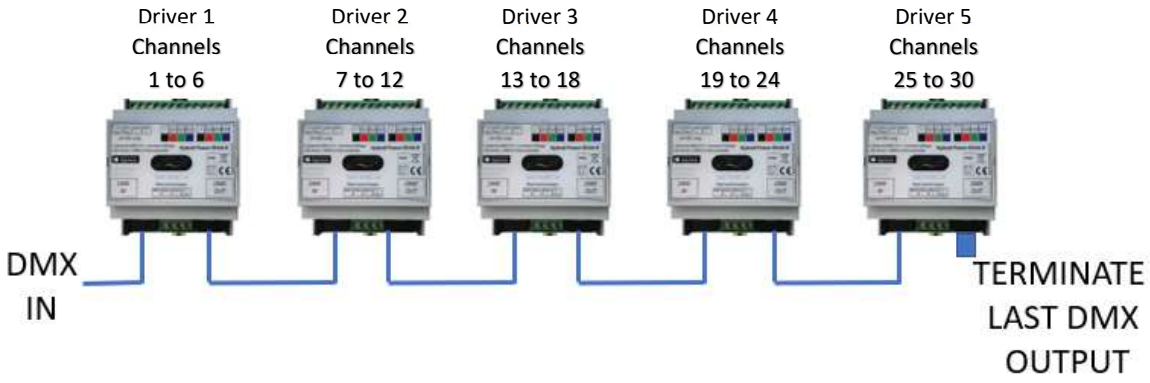




Set the Desired DMX Start address for that Driver and confirm to save.

NOTE: Each Driver has six PWM channels which correspond to six following DMX addresses assigned to that Driver. The DMX start address of each Driver should be in the sequence of 6, i.e. if Driver One has channels 1,2,3,4,5 and 6. Driver Two will start at channel 7 to 12 and so on with no overlapping channels.

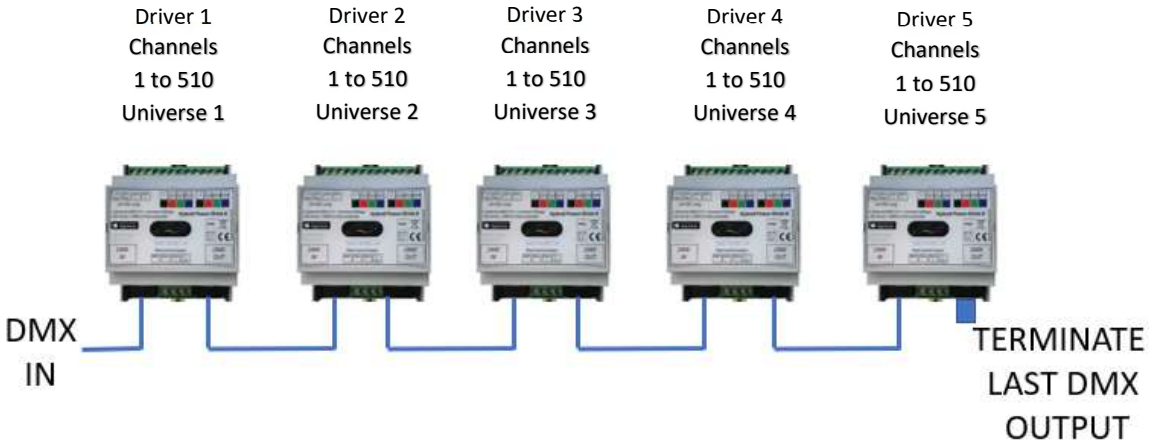
After the VEX-HYBRID-DRIVE-6 has been addressed, they can be wired as required and connected to a DMX data source such as Madrix or Pharos via the RJ45 port marked DMX IN. The signal can then be passed through the VEX-HYBRID-DRIVE-6 by chaining drivers together sequentially via the DMX IN/OUT ports as shown below up to a maximum of 31 Drivers. The last Driver in the chain must be terminated using an RJ45 DMX TERMINATOR (Supplied). Spare terminators can be discarded or retained as spares.



Addressing Drivers with RDM for Pixel Output

The drivers should be addressed as above, but the channels will differ. The channels are dependent on the number of pixels on each Driver. Each RGB pixel will have three channels up to a maximum of 170 pixels per Driver. Since there are 512 channels in one DMX universe for RGB, this needs to be 510 divided by three as there are three channels per pixel.

Drivers can share universes providing the channels are not overlapping but cannot span universes.



Cautions:

PLEASE TAKE NOTE OF LUMINAIRE AND DRIVER INGRESS PROTECTION RATING WHEN DECIDING LOCATION

MAKE SURE ALL CONNECTIONS MADE ARE TIGHT WITH NO LOOSE STRANDS AND WITH APPROPRIATE IP RATING.

DO NOT HOT PLUG OR REVERSE POLARITY.

ALWAYS ALLOW SUFFICIENT SLACK ON THE SUPPLY CABLE TO REMOVE LUMINAIRE FROM ITS POSITION FOR ANY FURTHER MAINTENANCE

MAKE SURE SUPPLY CABLE IS NOT IN CONTACT WITH ANY SHARP OBJECTS DO NOT LEAVE CABLE OR ANY CONNECTOR EXPOSED TO RAIN/MOISTURE FOR ANY PERIOD.

CAUTION!

- ***All images are representative and may not be of the actual product supplied depending on options specified when ordering.***
- ***Avoid staring directly into the light beam.***
- ***A certified electrician should install the product following local regulations.***
- ***Take extreme care when working with mains voltages.***
- ***There are no user-serviceable parts inside this unit. Do not attempt any repairs yourself, doing so will void your manufactures warranty.***
- ***During operation, the housing may become hot, avoid touching the unit with bare hands while in use.***
- ***Do not allow the product to operate in ambient temperatures above the maximum ambient stated on the datasheet; doing so will void any warranty.***
- ***Do not use aggressive cleaning agents! Any warranty will not cover any chemical damage to the seals.***
- ***DO NOT "HOT PLUG" THE LED FITTINGS OR DRIVERS AS THIS WILL INVALIDATE THE WARRANTY!***