

Description

Introduction

UWE Dynamic Speed Control (DSC) is a compact control unit that converts PWM signals to output voltage to DC fan units. This is useful when you have a single speed fan that you want to be variable speed controlled. The smart and compact design takes little space and is perfect for retrofitting.

Operating principle

UWE DSC accepts a PWM control signal in the range 15kHz to 25kHz and converts it into a power output signal with same frequency, active close to ground.

Input

The PWM input at pin 3 is of non-inverted type with a threshold limit; $>4V = ON$, $<1,6V = OFF$.

It has a resistance to ground of 10kOhm and needs a pull-up capacity from the signal source strong enough to pull it above the ON threshold. In case of weak pull-down characteristics in OFF condition from the PWM source, additional pull down resistance might be needed. On the other hand, external pull-up can be added to any voltage $<42V$ if needed. This is only up to limitations of the PWM signal source. No separate ground path between the PWM controller and the power switch is needed due to input filtering. Still, care must be taken to prevent any voltage offset of the same order as the threshold levels.



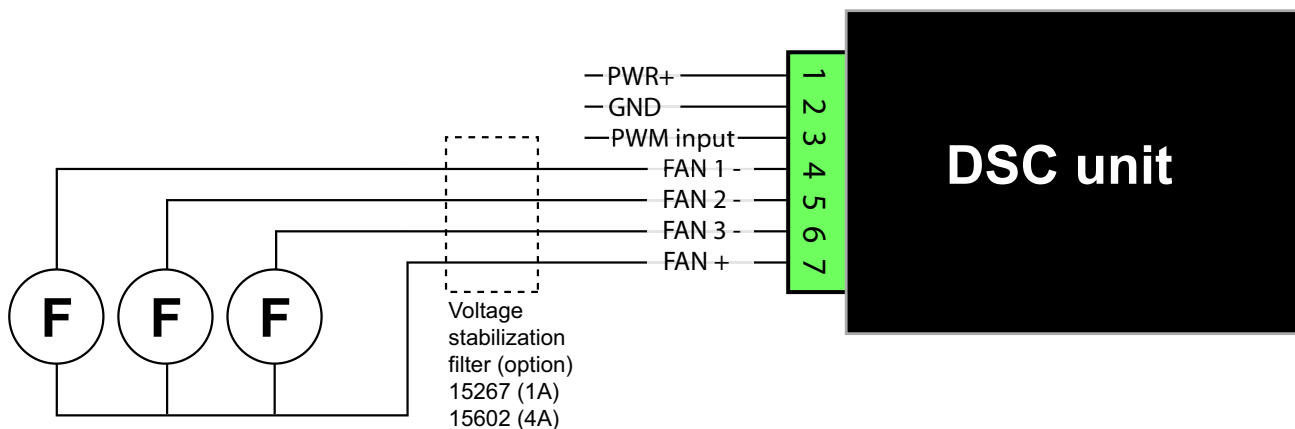
Figure: The UWE DSC unit

Outputs

The power outputs are distributed on three internally connected pins 4, 5, 6 that could be treated as one single terminal. Maximum capacity 5 A, totally. The output is of “open drain” type (close to ground when active = ON) and should be connected to the negative terminal of the fan. The positive terminal of the fans can be connected to pin 7 of the power switch but does not need to be.

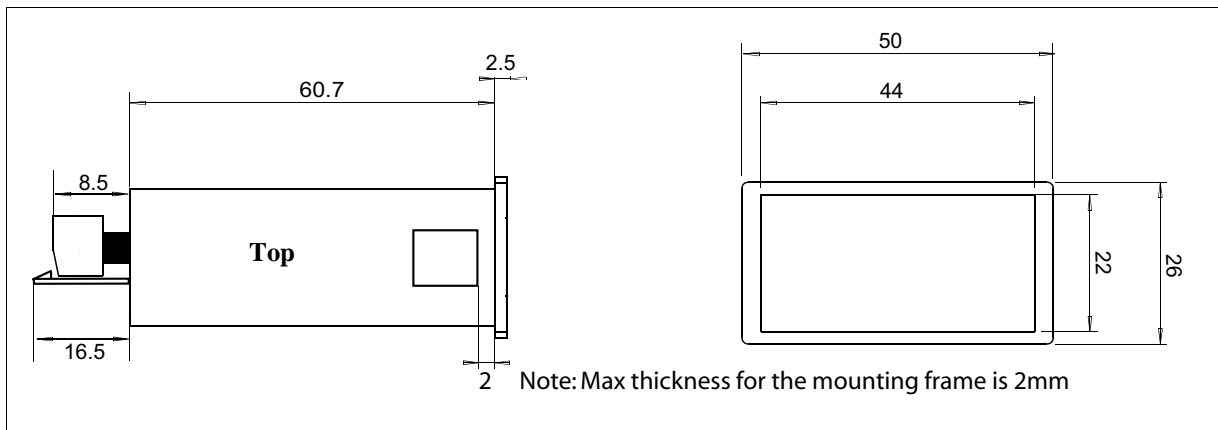
The outputs are overload- and short circuit protected.

Principle of connecting the DSC unit



Dimensions

DSC unit dimensions in mm



Electrical characteristics / Technical data

General

Nominal supply voltage: +22V - +32V
 Maximum Working supply range: +16V - +33V
 Max allowed supply voltage: 42V for 5min
 Load Dump protection: 65V (400ms)
 False polarity protection: No

Current consumption logic and outputs:

Standby: 20mA / 27,0V
 Maximum: Sum of output current from the outputs.

PWM Input

Input voltage: 0 - +32V
 Input frequency: 15kHz to 25kHz
 Threshold limit: >4V = ON, <1,6V = OFF
 Impedance: 10kOhm

FAN Output

Fan output voltage: Same as supply voltage
 Maximum output current: 6A
 Output frequency: Same frequency as input

Transient voltages

All digital IO + supply connections are designed to withstand the following normative test pulses according to ISO7637/2 and 3.

Tp 1a: Vs -150V, Ri 100Ohm, t1 5s
 Tp 3a: Vs -150V
 Tp 3b: Vs +100V
 Tp 4: Vb +24V, Vs -16V, Va -12V, t6 50ms, t8 20s
 Tp 5b: Vs +65V, Ri 1.5Ohm, td 600ms, tr 10ms.

ESD protection according to IEC 61000-4-2: 1995, level 4

EMC

Emission: According to EMC directive 95/54/EC
 Immunity:
 50A/m @ 5Hz - 400kHz
 50V/m @ 10kHz - 2MHz
 100V/m @ 2MHz - 1000MHz
 50V/m @ 1000MHz - 2000MHz

Temperature

Operation: -40°C to +70°C Storage: -40°C to +90°C

Weight

30 g.

Material

Housing: ABS/PC Foil carrier: Makrolon

Connectors and pinning

Suitable connector: See “Accessories”

Pinning table:





(Also see page 1)

CO1 7 pole	Comment:	Pin:	Type
PWR +	Main supply +24V	CO1:1	Power supply
PWR GND	Main supply GND	CO1:2	Power supply
PWM input		CO1:3	Digital in
FAN1 –		CO1:4	Fan Output –
FAN2 –		CO1:5	Fan Output –
FAN3 –		CO1:6	Fan Output –
FAN +		CO1:7	Fan Output +

Product range

Item	Illustration	Part number
UWE Dynamic Speed Control		18705-20

Accessories

Item	Illustration	Part number
Mounting bracket		18612
Contact housing, seven poles		15283
Voltage Stabilization Filter 1A Connection: A: +24V In B: - In C: - Out D +24V Out		15267
Voltage Stabilization Filter 4A Connection: IN: + Red - Black OUT: + Grey - Blue		15602