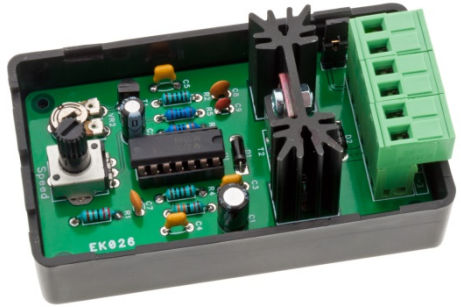


EK026 – DC motor speed controller

Kit description:

EK026 is a speed controller for DC motors and can also be used for dimming LED lights or other applications where a PWM regulator is needed. The kit is built around a dual timer IC, NE556. One half of the IC is used as a fixed frequency oscillator with a frequency of around 30kHz. The oscillator will output short pulses that are then stretched using the second half of NE556. How long the pulses are stretched is controlled using the onboard potentiometer (VR1). The trimmer potentiometer (VR2) is used for setting the maximum pulse time. To trim the generator, turn VR1 fully clockwise. Slowly turn VR2 until the output is fully on (100% pulse width). If the trimmer is turned too far, the output will revert to 50% pulsewidth. The kit can be powered using the same voltage as the motor or a separate supply if the motor voltage is higher than 15V. To use a common supply, JMP1 must be bridged. Please observe that the maximum voltage on V+ is 15V!








- * Supply voltage (V+ to V-): 5 - 15VDC
- * Supply voltage (E+ to E-): 5 - 100VDC
- * Maximum output current: 6A
- * PCB dimensions: 80 x 45mm
- * Enclosure dimensions: 85 x 50 x 20mm
- * Mounting holes: c-c 72.4 x 38.1mm, ϕ 2.54mm

Assembly guide:

Before you begin mounting components, make sure the board is free from damage and scratches. Make sure all the components are included and are of correct value. Compare with the component list!

Begin mounting the lowest components and work your way up to the largest. IC sockets, resistors, ceramic capacitors and diodes go first. Electrolytic capacitors, connectors and potentiometers go last. Some components are polarized and must be mounted in the right way. Please observe the markings on the board!

Component list:

RefDes	Value	Qty.	Part.no.	
Enclosure	85x50x20mm	1	41016805	
CON1	5.08mm 6-pin	1	40350556	+3x 40210011
M1	Heatsink TO-220	1	40410014	+1x 41010772, 1x 41010787
C1	Elyt 100uF	1	40320001	
C2	Elyt 10uF	1	41013579	
C3, C4, C5, C6	Ceramic 100nF	4	41015538	
C7, C8	Ceramic 1nF	2	40500030	
C9	Ceramic 220pF	1	40500020	
R1	2.2kohm	1	40811322	
R2, R4	1kohm	2	40811310	
R3	33kohm	1	40811433	
R5	10kohm	1	40811410	
R6	10ohm	1	40811110	
VR1	9mm 10kohm	1	41017261	
VR2	VR085 500ohm	1	40900133	
D1, D2	1N4004	2	40310004	
U1	Timer NE555	1	40350556	+1x 40410014
T1	BC547 TO-92	1	40320001	
T2	IRF640 TO-220	1	41013579	

Schematic:

