



7 Segment Mechanical Counter, Version 3.0, Ratchet, Forward & Reverse



[VIEW IN BROWSER](#)

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Summary

v3.0 - Digital mechanical 7 segment sequential counter See description/pics for rubber band alternative to coil springs

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Version 3.0 of the 7-Segment mechanical counter. Improved design. This particular model is a sequential counter (numbers 0 - 9) that receives a linear input to cycle the display. This version was designed and prototyped using the Bambu Lab X1 Carbon.

See video here:

New for v3.0:

- Forward & Reverse Counting (by swapping springs/drums instillation in the mid-plate)
- Cams A, B, & C now include guide discs to keep seg followers aligned
- Segments & followers are now a single printed part (no glue required!)
- Shape of D-Cam shafts improved to avoid printer corner bulging
- Increased depth of numerous components to improve rigidity & surface contact area among interacting parts
- Improved tolerances
- Replaced push-action rubber band with coil springs
- Lengthened pegs on push-action that engage the spring drums
- Dedicated rubber band for D-segment
- Pegs added to seg-plate to allow for equal distribution of force from rubber band

Quantities of each 3D printed component for a complete assembly:

- (1) - BODY_v3.0
- (1) - SEG_PLATE_v3.0
- (1) - MID_PLATE_v3.0
- (1) - BACK_PLATE_v3.0
- (4) - SCREW_v3.0
- (2) - SEG A_v3.0
- (2) - SEG B_v3.0
- (2) - SEG C_v3.0
- (1) - SEG D_v3.0
- (1) - CAM A1_v3.0
- (1) - CAM A2_v3.0
- (1) - CAM B1_v3.0
- (1) - CAM B2_v3.0
- (1) - CAM C1_v3.0
- (1) - CAM C2_v3.0

(1) - CAM D1_v3.0

(1) - CAM D2_v3.0

(1) - TIMING_GEAR_No1_v3.0

(1) - TIMING_GEAR_No2_v3.0

(1) - SPRING_v3.0

(1) - SPRING_R_v3.0

(1) - SPRING_DRUM_v3.0

(1) - SPRING_DRUM_R_v3.0

(1) - PUSH_ACTION_v3.1 (Updated 8/3/24, two options: coil springs (recommended) or rubber band)

(1) - PUSH_BUTTON_v3.0

Non-3D Printed Components:

(1) - Rubber band (recommended 2mm x 60mm) - for D-segment

(1) - Rubber band (recommended 2mm x 100mm) - for A, B, & C segments

Push-Action Option A: (recommended)

(2) - Coil Springs (4mm x 50 mm)

Push-Action Option B:

(1) - Rubber band (recommended 3mm x 60mm)

Printer Settings/Profile:

Bambu Studio Profile:

0.20mm Standard @BBL X1C

General Settings:

Material: PLA

Layer Height: 0.2mm

Infill: 100%

Supports: No

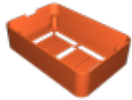
Based on a 0.4mm nozzle

Alternate Options:

2-digit body: <https://www.printables.com/model/972295-7-segment-2-digit-mechanical-counter-body-version>

Model files

all_parts_v31.3mf



body_v30.stl



back_plate_v30.stl



cam_b1_v30.stl



cam_a1_v30.stl



cam_d2_v30.stl



cam_b2_v30.stl



cam_c1_v30.stl



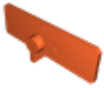
cam_a2_v30.stl



cam_c2_v30.stl



cam_d1_v30.stl



seg_d_v30.stl



seg_b_v30.stl



spring_drum_v30.stl



seg_c_v30.stl



timing_gear_no1_v30.stl



seg_a_v30.stl



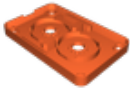
push_button_v30.stl



spring_r_v30.stl



spring_drum_r_v30.stl



mid_plate_v30.stl



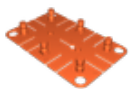
spring_v30.stl



screw_v30.stl



timing_gear_no2_v30.stl



seg_plate_v30.stl



push_action_v31.stl

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