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### Manual Pulse Generator MPG-OS v.2.0

# - draft -

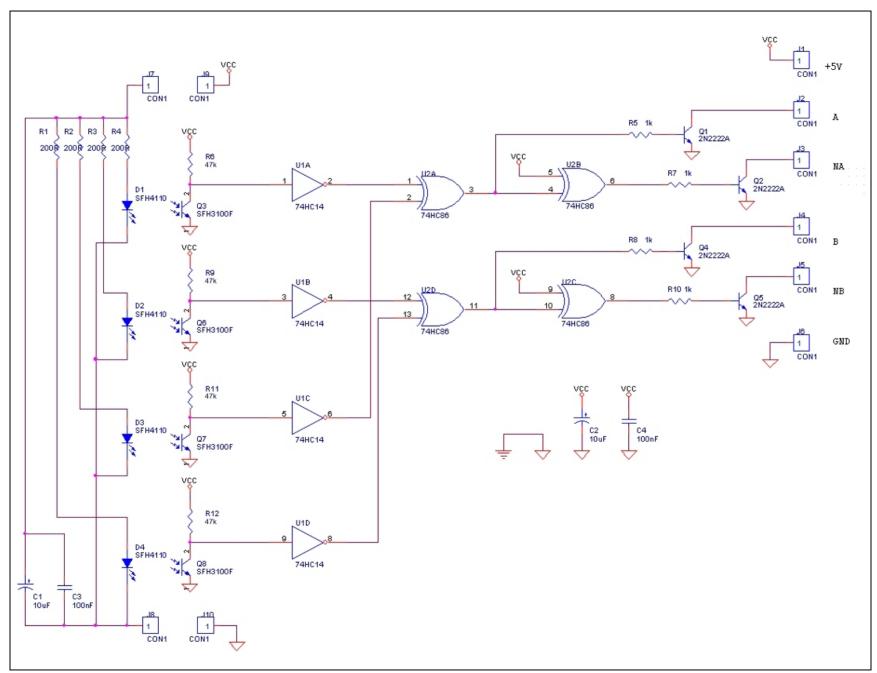
#### WARRANTY

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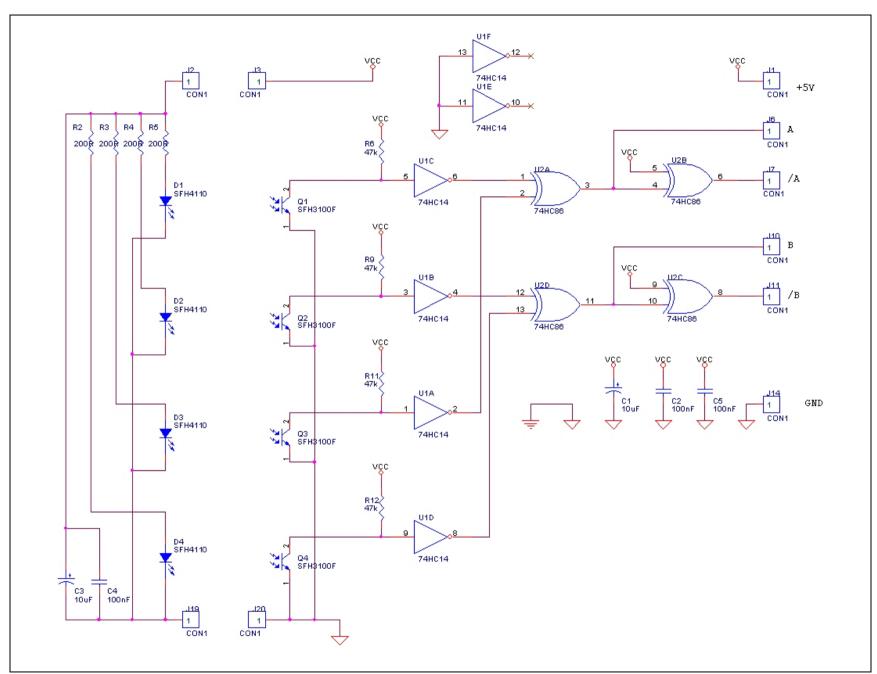




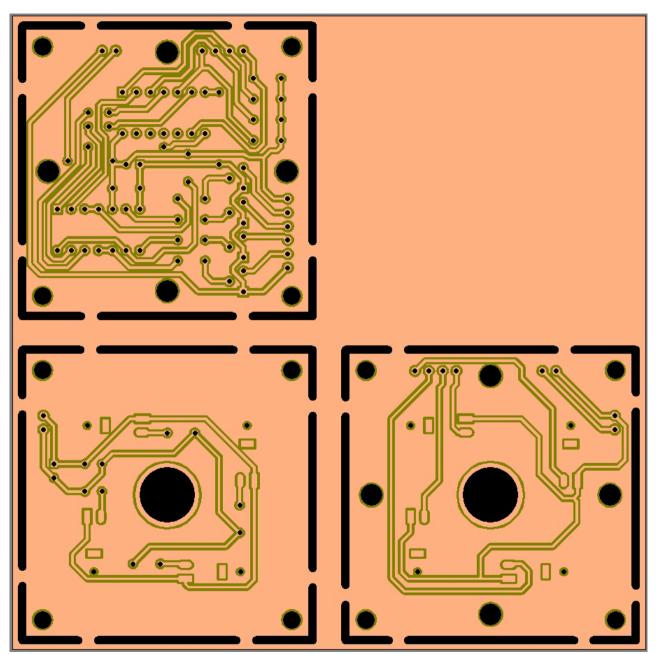




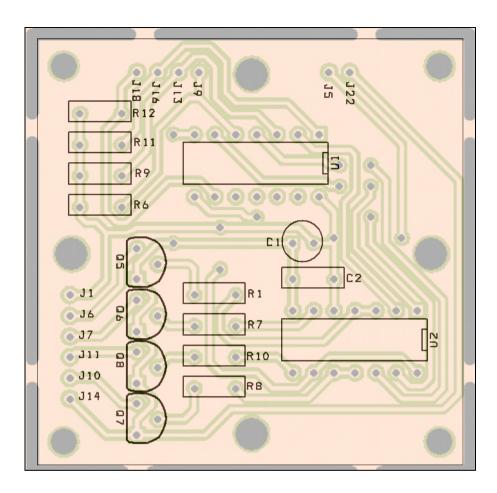
Strasmax MPG-OS v.2.0 - Schematic for the through-hole components, engraved PCB version



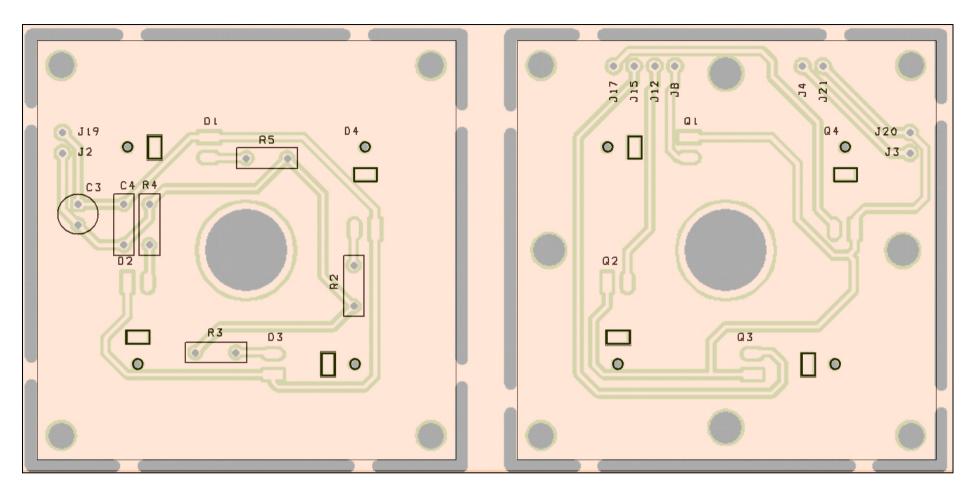
Strasmax MPG-OS v.2.0 - Schematic for the SMD components, industrial PCB version



Strasmax MPG-OS v.2.0 – Engraved PCB drawing



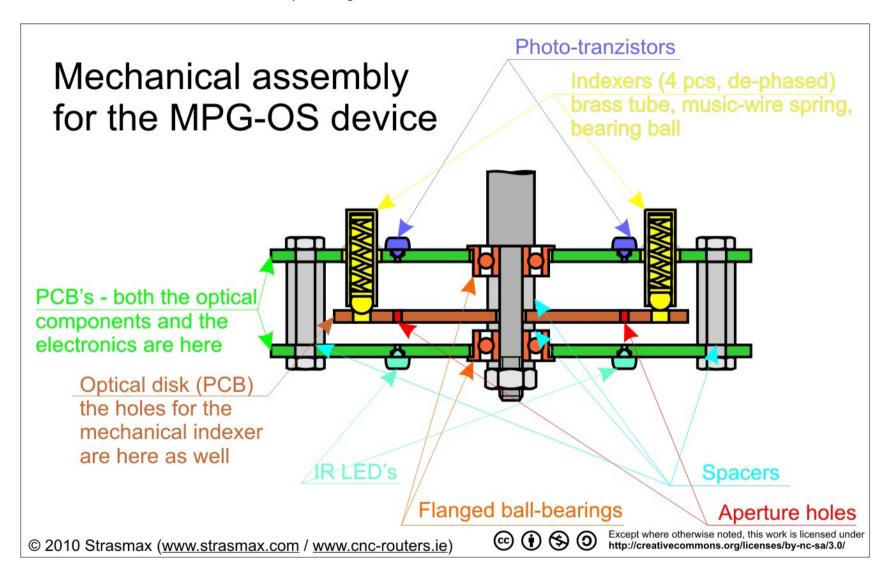
Strasmax MPG-OS v.2.0 – Engraved PCB component placement drawing



Strasmax MPG-OS v.2.0 – Engraved PCB opto-electronic components placement drawing

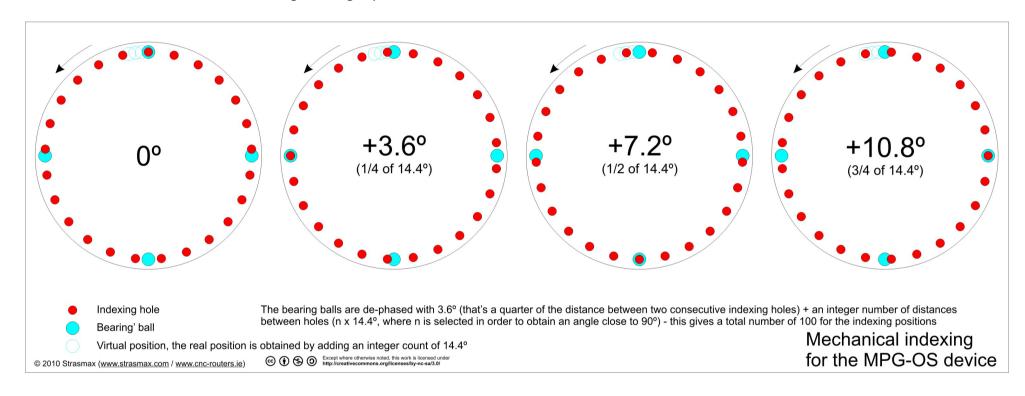
## Mechanical assembly

Please see below the mechanical assembly drawing:



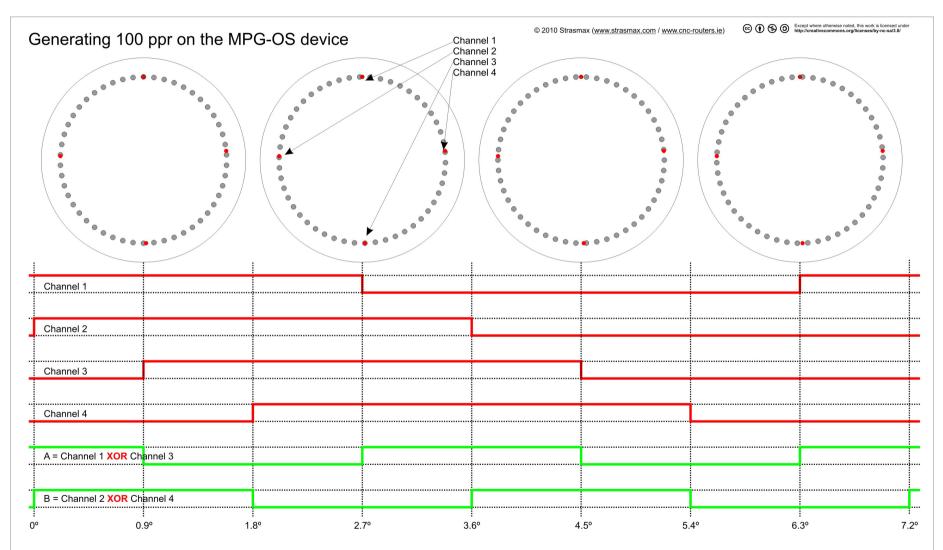
## **Mechanical indexing**

Please see below the mechanical indexing drawing explanation:



## **Optical indexing**

Please see below the optical indexing diagram:



The optical index is working similarly to the mechanical index, but by design the de-phasing is 45° relative of a index hole cycle (8 virtual positions). The index hole cycle is 7.2°, this means that the optical sensors have to be de-phased with 7.2° / 8 = 0.9°. By symmetry, only 4 channel sensors are enough for the sensing. The other 4 can be eliminated, as the signal would be the negated signal of the first 4 (this reduction is easy to demonstrate using a Karnaugh diagram, not in the scope of this document).

Above you can see the wave forms. A complete pulse cycle is obtained over 3.6°, this means 100 full pulses per rotation (ppr), identical to the mechanical indexing, containing the direction information as well.

This document is a preliminary version, has to be completed with further instructions.

The following additional files are part of this document set, are to be distributed together with this file, and are covered under the same license:

Strasmax MPG-OS v2_01.pdf	This file
Strasmax_MPG-OS-v2_0_BOM.xls	Bill of materials for the two designs
Strasmax_MPG-OS_v2_00_manufacturing.zip	Manufacturing files for the PCB's
Strasmax MPG-OS v2_0 - PCB drawing.pdf	1:1 PCB drawing, through-hole version
Strasmax_MPG-OS v2_b_mechanical_and_indexing.pdf	Drawings of the mechanical assembly and explanation of the mechanical and optical indexing
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