End-stops linear units

In the second round after assistance of Mikael Elfman these were purchased:

5 st (OPB990T51Z): https://www.elfa.se/sv/laesgaffel-18-mm-40-ma-30-ma-40-70-optek-opb990t51z/ p/30009110?channel=b2b&price_afd=48.2&gclid=CjwKEAjwja_JBRD8idHpxaz0t3wSJAB4rXW5Xf4yJ7 wcB *Documentation*: https://www.elfa.se/Web/Downloads/_t/ds/OPB960-990-series_ eng_tds.pdf?mime=application%2Fpdf Code OPB9...:

- 9 — Open (apertures visible), Wires
- 0 — Buffer Totem-Pole
- T — Both (two mounting tabs)
- 51 - aperture width
- Z = Wires only, None for PCB leads

Page 3: wire colour code. Page 4: Connection diagram Page 5: Supply voltages

- Maximum diode current = 40 mA
- 4.5 V < V_CC < 16 V

** 330 Ohms ** resistor -> Diode current ~ 24 mA

Purchased this: https://cdn.sos.sk/productdata/dc/80/51538cd9/ktir-0621-ds. pdf

Instructions on how to connect it:

- https://bennthomsen.wordpress.com/engineering-toolbox/ti-msp430-launchpad/ interfacing-a-photo-interrupter/
- http://www.utopiamechanicus.com/article/arduino-photo-interruptor-slotted-optical-switch/

Not what is presented below!!!

Purchased: Photomicrosensor, transmissive sensing method, termination type - terminal type and mounting type - through hole

- Photomicrosensor (Transmissive) - EE-SX1018 from *Omron.*

- One LED (emitter) and one phototransistor on each side of the fork.

- Need a limiting resistor (forward impedance of LED is "limitless")!

- Lower limit of Forward voltage LED: 1.2 V (specification sheet)

- Optimal forward current: 20 mA.

- R = (V_CC - V_F) /I_F, V_CC = supply voltage, V_F = forward voltage and I_F = forward current

- V_CC = 8V -> R = 8-1.2 / 20e-3 = 340 Ohm

Page 17 for circuit design:

- Unclear what supply voltage needed for the phototransistor.
- Seems proper to have an output resistor for the voltage to "lie over". There exists one at each pin of the gertbot EXT pins.
- …

Questions

- What ON/OFF currents?/voltages does the Gertbot react to? And what voltages should we supply? Different to the diode and the phototransistor?
- How do we deal with the leakage current in the phototransistor? Is it going to pose a problem?