

# 12 VDC Automotive-Power ENCODER OPTION

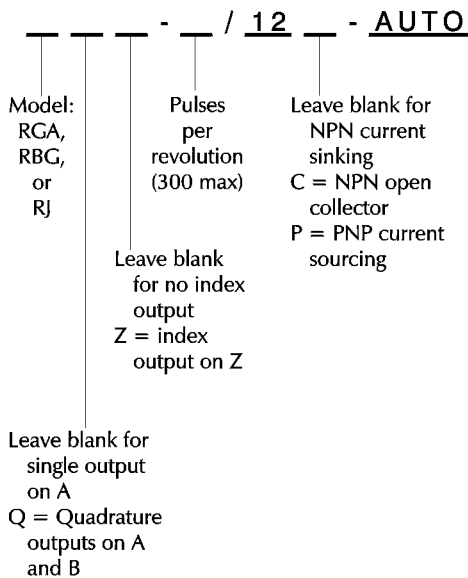
## DESCRIPTION

Photocraft offers a special circuit option that allows an incremental encoder to operate directly from typical 12 VDC automotive power.

Normally there are 1 to 10 volt (peek to peek) transients present on 12 volt automotive power when the vehicle is operating. There can also be transients of up to 80 volts lasting for 100 milliseconds, and even larger transients up to 400 volts lasting for a few microseconds. In addition, the DC voltage could be as high as 24 volts, which some mechanics use when emergency starting a vehicle. Any one of these is sufficient to permanently damage encoder circuitry.

With this option, we include a power regulation circuit in the encoder that filters out these types of transients, and regulates the voltage to the 12 VDC maximum that is needed to operate the encoder

## ORDERING INFORMATION



## Electrical

**Power Requirements:** 12 VDC nominal.

Current (no load):

- 50 ma. max. at 12 VDC
- 200 ma. max. at 18 VDC
- 400 ma. max. at 24 VDC

Protected against reverse voltage.

*Note: Operation above 12 VDC for extended periods not recommended.*

**Operating temperature:** 0° to 70°C

Consult factory for extended operating temperature ranges.

**Pulse rise time:** 3μsec (typical)

**Pulse rate:** 0 - 30 kHz

**Pulses per Revolution:** 1 to 300.

Consult factory for others.

**Output Waveshape:** Square wave;

Channels A and B are 50/50 duty cycle nominal in quadrature relation (channel A leads channel B by 90° for clockwise rotation when viewed from shaft end). Channel Z is approximately the width of a single pulse on A.

*Note: Channels B and Z are optional.*

## SPECIFICATIONS

### Output Signal:

- $V_{OH} = 10V$  min. at 12 VDC input
- $V_{OL} = 0.6V$  max.

**Output Circuits:** (See Figures 1 & 2 below)

- NPN with 2.2KΩ pull-up resistor to regulated 12 vdc (50 ma. max. sink current)
- NPN open collector (30 volt max., 50 ma. max. sink current)
- PNP with 2.2KΩ pull-down (50 ma. max. source current)

**Warning:** the outputs are not short circuit or overload protected, therefore, use caution during installation to avoid damaging the encoder.

### Electrical Connections

6-Pin	Function	Cable lead
A	Common	Black
B	Supply voltage	Red
C	Output Z	Brown*
D	Output A	White
E	Output B	Green
F	—	—

\* Output Z is green if Output B is not used.

**Note:** See the model specific data sheet for additional connector and cable information.

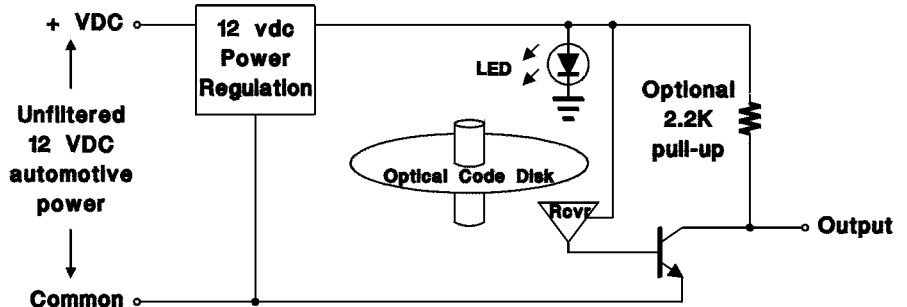


Figure 1 - NPN Transistor Output

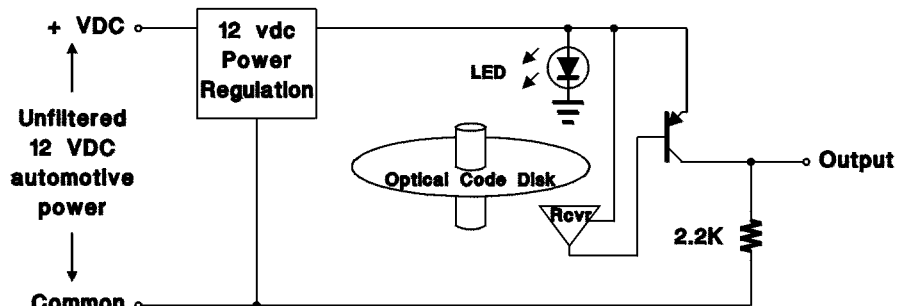


Figure 2 - PNP Transistor Output



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