WheelWatcher™ – WW-01

Closed loop control made easy

Applications:

- **Dead reckoning**
- **Odometry (how far has it gone)**
- **Closed-loop position, velocity, and acceleration control**
- **Stall detection**

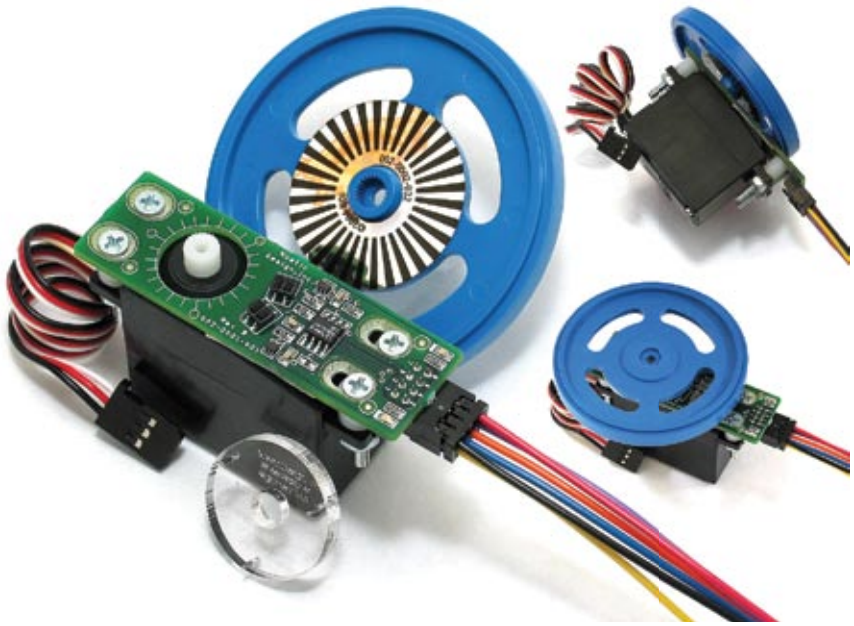
Features:

- **Easy installation**
- **Simple interface**
- **Preprinted 32 stripe self-adhesive codewheel**
- **Hardware quadrature decode with 4x multiply for 128 clocks per rotation**
- **Raw quadrature**
- **Works with standard injection-molded robot wheels – any color**
- **Code examples for common robot controllers**

Compatible Servos:

(partial list)

- **Futaba**
  S3001, S3003, S3004, S9001
- **GWS**
  S03N, S03T, S03TXF, S06
- **Hitec**
  HS300, HS322HD, HS425BB, HS475HB, HS605BB
- **Hobbico**
  CS-65, CS-67



WheelWatcher shown with servo and wheel which are sold separately.

The WheelWatcher enables robot builders to quickly add closed-loop control to their robots. Both standard ChA/ChB raw quadrature outputs, as well as decoded Clock and Direction signals are available. The clock signal produces 25µs pulses at each transition of ChA or ChB, providing a 4x increase in resolution – 128 clocks per servo rotation – while the direction signal indicates the decoded direction of rotation, making it very easy to add to any microcontroller.

Easy Installation!

Board installation consists of removing the adhesive backing, aligning the board with the shaft, then attaching the board and servo to the robot chassis with the supplied mounting hardware. Codewheel installation is just as simple: peel off the backing, and lower onto the spline-side of the wheel; the raised hub helps align the codewheel to the axis of rotation. Accurate alignment to the servo output shaft is easy to do with the included AL-02 alignment tool.

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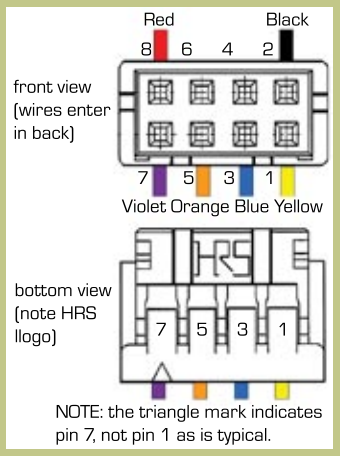
Connector Pinout

Standard Quadrature Grouping:

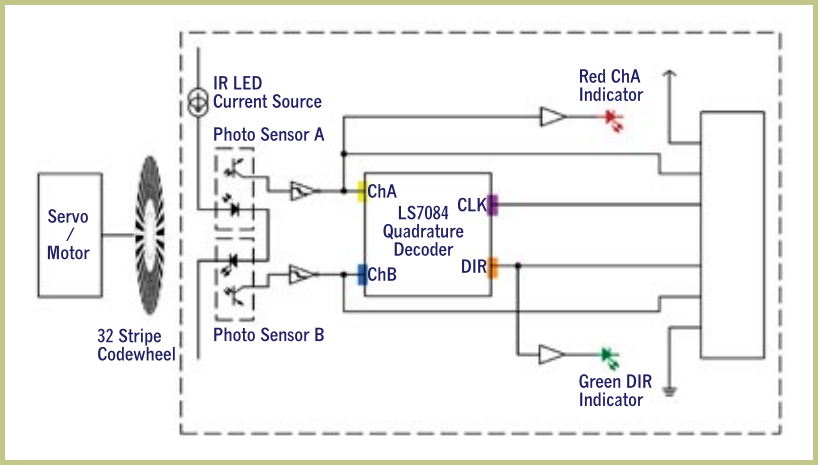
1. ChA yellow (optional)
2. Gnd black
3. ChB blue (optional)
4. +5v

Decoded Quadrature Grouping:

5. Dir orange
6. Gnd
7. Clk violet
8. +5v red



Block Diagram



CS-040 - Code Wheel Spacer (optional)

Made of laser cut plastic with a self-adhesive backing, the CS-040 fits perfectly over all common servo control horns on the servo side of the horn. Thirty two guide holes are provided which line up with all of the most usefully located holes on all common servo horns from GWS, Futaba, and Hitec.

The CS-040 shown on the center wheel has been drilled to fit a standard control horn mounted on a Budget Robotics wheel.

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Acroname easier robotics

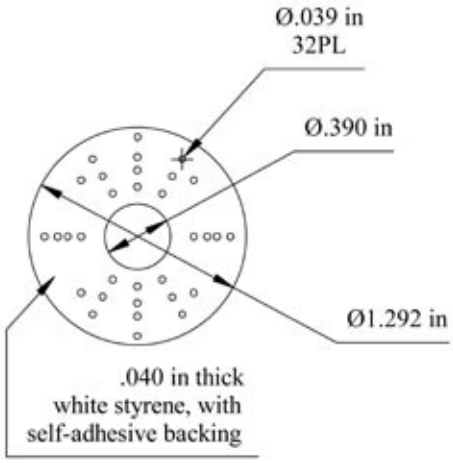
- TOTALROBOTS, Surrey, UK
- Hobby Engineering, Millbrae, CA
- Zagros Robotics, St. Louis, MO

WW-01 servo encoder with alignment tool

- Printed circuit board, preassembled
- Self-adhesive codewheel
- 6" four lead color-coded cable
- Two extra wires provided for use with raw-quadrature output
- Mounting hardware
- Alignment tool
- Servo and wheel not included

Two wheel WW-01-Kit

- Two WW01 servo encoders
- One alignment tool
- Servos and wheels not included



CS-040 (optional)

- pre-drilled laser cut plastic codewheel spacer with adhesive backing

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