# Soccer Robot Ball: RCJ-05

An infrared ball compliant to the new specification of RoboCupJunior soccer competitions. This new IR ball satisfies the new RoboCupJunior rules.

The 40 kHz carrier output of the ball is modulated with a trapezoidal (stepped) waveform of frequency 1.2 kHz. This enables the sensors to easily distinguish the infrared light emitted by the ball from infrared emissions from other sources, and also to estimate the approximate distance to the ball.

The new ball is not only able to operate in this new modulated pulse mode but also in the current unmodulated mode, as well as two other pulse modulation modes for other robot competitions (total of 4 modes available).

For the power indicator, two high-visibility red LEDs are used. They also indicate the battery life at 3 levels by blinking at different speeds.

## SPECIFICATIONS

- **IR peak wavelength:** 940nm
- **Number of IR-LEDs:** 20 pcs
- **Batteries (not included):** 4 x size-AAA, alkaline dry cell (AM4/LR03, 1.5V) or Ni-MH rechargeable (1.2V)
- **Supply voltage (rating):** 4.8-6V DC
- **Current consumption:** 80mA (mode-A), 230mA (mode-B), 130mA (mode-C, D)
- **Dimension:** 74mm (3 inches) in diameter, sphere
- **Weight:** Approx. 95 g (0.21 lbs), excluding batteries

| Condition | IR-signal mode |
|---|---|
| A | Pulse modulated RoboCupJunior Soccer Ball Standard (step waveform modulation, 40kHz carrier) |
| B | Unmodulated RoboCupJunior Soccer Ball Standard (steady IR emission) |
| C | 600Hz pulse modulation (40kHz carrier) |
| D | 1200Hz pulse modulation (40kHz carrier) |

* A robot soccer ball for RoboCupJunior officially accredited by the RoboCupJunior Technical Committee.