

RP6V2-C

Autonomous Robotic Vehicle

RP6V2-C Capabilities:

Cruise around autonomously

Avoid obstacles

Follow light sources

Measure light intensity

Detect collisions

Detect blocked engines

Detect low battery

Measure and control rotational speed of motors via high-resolution encoders

Move given distance

Rotate specific angles

Measure driven distance

Move in geometric paths: circles, polygons, and others

Exchange data with other robots or devices

Operate as remote control car (RC5)

Transfer sensor data to PC via USB

Expand via I²C bus



Overview:

The RP6V2-C is an economical autonomous mobile robot system which provides an introduction to the fascinating world of robotics. It is designed for beginners as well as experienced electronics and software developers.

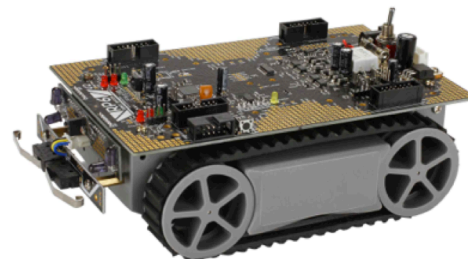
Programmable in C, the RP6V2-C has many possibilities for expansion as your programming skills grow.

The RP6V2-C is ideal for educational curriculum at universities, trade schools, high schools and of course hobby users.

With an extensive manual, lots of example programs, and a huge C function library, programming is easy and you can instantly start experimenting with your robot. All library and example programs are open source (GNU GPL)!

Features:

- ATMEGA32 8-bit RISC microcontroller with 8 MIPS and 8MHz clock
- Delivered fully assembled (no soldering needed)
- CD with software, 138 page manual, and many extras
- AVR-GCC and RobotLoader open source software for use with Windows and Linux
- Programmable in C
- Receives IR codes in RC5 format
- USB Interface for easy programming and communication
- Module I2C bus expansion system
- Expansion boards may be stacked as needed
- Sample C programs and huge C function library
- Powerful tank drive train can drive up steep ramps and over obstacles
- Large payload capacity
- Light, collision, speed and IR-obstacle sensors integrated
- Two 7.2V DC motors
- 625 CPR encoder resolution for precise speed regulation
- Six PCB expansion areas



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RP6V2-C

Specifications

RP6V2 Robot	
Processor memory	32KB Flash ROM 2 KB SRAM 1 KB EEPROM
USB upload rate	500kBaud
Expansion system	Two-wire I ² C bus 400 kBit/s transfers 127 devices
Encoder resolution	625 CPR
Max speed of vehicle	25 cm/s
Traverse obstacles	ca. 2 cm height
Negotiate ramps	30% steepness 40% with modifications
Bumper sensors	2 in front
ACS (Anti-Collision-System)	IR receiver and two IR diodes for left and right
Status LEDs	6 (4 may be appropriated)
Light sensors	2
ADC (Analog to Digital Converter)	2 (may be used as I/O)
Motor drivers	2 optimized MOSFET H-Bridges
Ground clearance	10 mm
Power supply connectors	2 x 5V and 1 x 7.2V
Voltage regulator	5V
Operating time	3-6 hours
Power supply	6 AA rechargeable batteries (not included)
Current consumption	500 mA
Dimensions (L x W x H)	172 x 128 x 50 mm
Technical data subject to change without notice	

RP6V2-C comes with the following items:

RP6V2 Robot

CD

10-pin connector

USB connector cable

USB programmer interface

Battery charger

RC5 Remote control

Available Accessories

RP6V-M32

RP6V2-WIFI

RP6V2-EXP

RP6V2-DSP



Innovative Training Solutions

Training & Support Manual on CD

Chapter 1: Introduction
Expansion and technical data
What the RP6 can do
Application suggestions

Chapter 2: The RP6 in Detail
Control system
Power supply
Sensors
Drive system
Expansion system

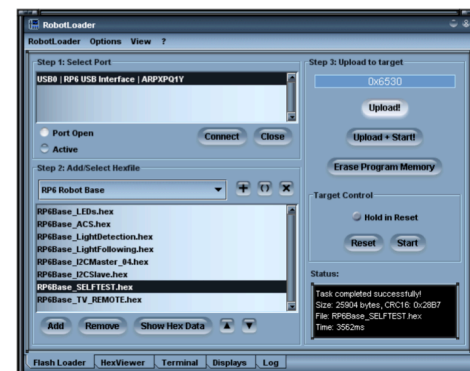
Chapter 3: Hardware & Software Setup

Chapter 4: Programming the RP6
Configuring the Source Code Editor
Program upload to the RP6
Why C? And what's "GCC"?
C- Crash Course for Beginners
Makefiles
The RP6 function library
Example programs

Chapter 5: Experiment Board

Chapter 6: Closing Words

Appendix:
Troubleshooting
Encoder calibration
Connector pinouts
Recycling and safety instructions

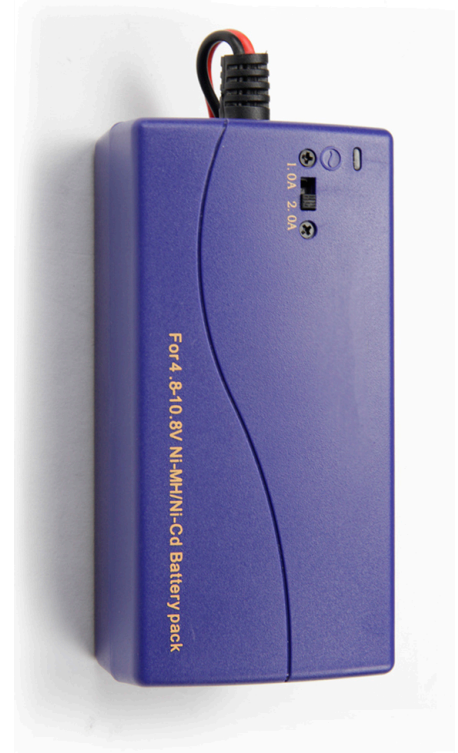


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RP6V2-C

Specifications

<i>RP6V2 RC5 Remote Control</i>	
Model	RP6V2-RMT
Frequency	RC5
Batteries	2X AAA 1.5V



Specifications

<i>RP6V2 Charger</i>	
Model	RP6V2-CHG
Use	USA & Europe
Voltage	110-240 VAC
Frequency	50-60 Hz
Voltage range	4.8 - 10.8 V
Charging current	1 A or 2 A
1 A usage	Battery pack 1000-2000 mAh
2 A usage	Battery packs over 2000 mAh
Battery charge time	Time (Hrs) = Battery capacity (Ah) / Charging current (1A or 2 A)



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