

# Radio remote control system RAC2 series



A proportional control radio remote control system which is used for construction machinery. It is installed on power shovels and many other types of construction machinery, and has won high feedback from customers. The system features five joysticks for proportional control so it is capable of supporting just about every kind of construction machine. The output signals from the receiver are RS-422 serial communication signals. Also available as an option is a control unit which enables hydraulic solenoid valves and other such parts to be driven directly. The specified low-power type of radio signals are used so the system is ready for immediate use with no license needing to be obtained in Japan.

## Features

1. The transmitter has a built-in antenna, and the shape makes it easy to operate.
2. The specially designed secondary battery allows 8 hours of continuous operation.
3. All the switch input and lever operations can be performed and the signals output at the same time.
4. The design returns all operations to the shutdown status upon receipt of jamming signals or other high levels of noise.
5. The receiver output is configured as a general-purpose serial interface so connection is possible with different kinds of controllers.
6. Also provided as an option is a control unit which receives the serial output signals of the receiver and executes the corresponding operations.
7. The communication range is more than 100 meters under favorable ambient conditions.

## Model Code

### ● System (transmitter + receiver + accessories)

**U-RAC2-GN-220-10**

- 1 System designation: RAC2 series  
(transmitter + receiver + accessories)
- 2 System symbol
- 3 System series no.
- 4 Design no.

### ● Transmitter

**RAC2-GNTX-220-10**

- 1 System designation: RAC2 series
- 2 Transmitter symbol
- 3 Transmitter series no.
- 4 Design no.

### ● Receiver

**RAC2-MERX-100-20**

- 1 System designation: RAC2 series
- 2 Receiver symbol
- 3 Receiver series no.
- 4 Design no.

**M**  
6-1

Electronics Components

## Model Code

### ● Charger

## RAC-CHG-100-10

1 2 3 4

1 System designation: RAC1/RAC2 series

2 Charger symbol

3 Charger series no.

4 Design no.

### ● Battery

## RAC2-BTPC-300-10

1 2 3 4

1 System designation: RAC2 series

2 Battery symbol

3 Battery series no.

4 Design no.

## Specifications

### Transmitter specifications

Output	Switched between wireless output and wired output
Transmit frequencies	429 MHz band, 40 frequencies
Wireless Modulation system	FSK modulation (modulation speed: 4800 bps)
Standard complied with	ARIB STD-T67
Wired output	RS-422 standard complied with 9600 bps Parity-EVEN Stop-1
Control system	Digital code transmission system
No. of operation inputs	Analog (joystick) inputs: 8 inputs Inputs of switches on joystick: 2 inputs Panel switch inputs: 6 inputs
Operable range	Approx. 100 m (under favorable ambient conditions; measured using the method employed by Tokyo Keiki)
Antenna	Built-in antenna
Power requirements	Rechargeable nickel-hydrogen battery, DC 4.8V
Continuous usage time	More than 8 hours
Power display	Monitor lamp (red)
Water resistance	JIS D 0203-1994 S2
Working temperature range	-10 °C~+60 °C
Storage temperature range	-25 °C~+75 °C
Weight	Approx. 2.3 kg (including bracket, strap and battery)

### Charger specifications

Power requirements	Commercial-use AC 100V or DC 12 to 36V power
Power consumption	9W (when charged)
Working temperature range	-10 °C~+50 °C
Normal charging temperature range	0 °C~+40 °C
Storage temperature range	-20 °C~+70 °C
Weight	Approx. 500 g

### System configuration (standard configuration)

Product	Qty	
Transmitter	1	Transmitter bracket, shoulder strap and waist belt provided
Transmitter battery	2	
Charger	1	Power cables (car cigarette lighter plug cable and AC cable) provided
Attaché case	1	Used to house the transmitter unit
Receiver	1	
Receiving antenna	2	
Cable for receiving antenna	2	

### Control unit (optional (sold separately))

Product	Qty	
Control unit	1	
Cable connecting receiver and control unit	1	For connection with receiver (0.5 m)
Wired cable	1	For connection with transmitter (30 m)

### Receiver specifications

Receive frequencies	429 MHz band, 40 frequencies
Reception system	Quartz crystal-controlled double superheterodyne system
Output	RS-422 standard complied with 9600 bps Parity-EVEN Stop-1
Operation error prevention	Verification using station codes (10 bits) Check sum verification
Antenna	5/8λ whip antennas x 2 (diversity system)
Supply voltage	DC 10 V~32 V
Current consumption	50 mA (with 24 V supply voltage)
Vibration resistance	JIS D 1601-1977 Class 3B Vibration frequency range category 200 Vibration acceleration grade category 7
Water resistance	JIS D 0203-1994 S2
Working temperature range	-10 °C~+60 °C
Storage temperature range	-25 °C~+75 °C
Weight	Approx. 1.2 kg

### Battery specifications

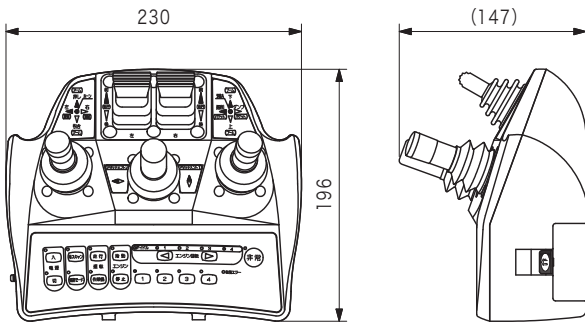
Output	DC 4.8 V, 1500 mAh
Structure	Nickel-hydrogen battery pack inside plastic case
Working temperature range	-10 to +60°C (when discharged) 0 to +40°C (when charged)
Storage temperature range	-20 °C~+60 °C
Weight	Approx. 200 g

### Control unit specifications

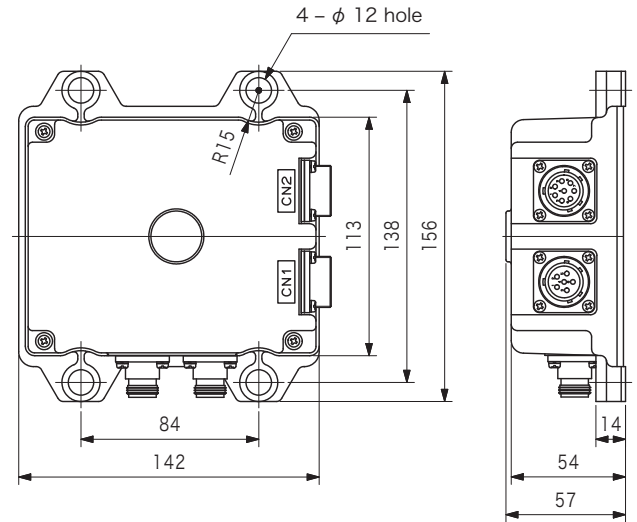
Input	RS-422 standard complied with 9600 bps Parity-EVEN Stop-1
Output	Proportional output PWM current outputs for electromagnetic proportional valves: 8 outputs Maximum output current: 0.8 A Transistor outputs for electromagnetic switching valves: 16 outputs Maximum output current: 2.0 A Relay-type output circuit Dry contact outputs: 10 outputs Maximum load: 2.0A GND contact outputs: 4 outputs Maximum load: 1.0 A
Supply voltage	DC 24 V (DC 18 V~32 V)
Current consumption	Approx. 400 mA (with 24 V supply voltage but excluding load current)
Vibration resistance	JIS D 1601-1977 Class 3B Vibration frequency range category 400 Vibration acceleration grade category 7
Dust-tightness	JIS D 0207-1977 F3
Working temperature range	-20 °C~+75 °C
Storage temperature range	-40 °C~+85 °C
Weight	Approx. 8.2 kg

# Dimensions

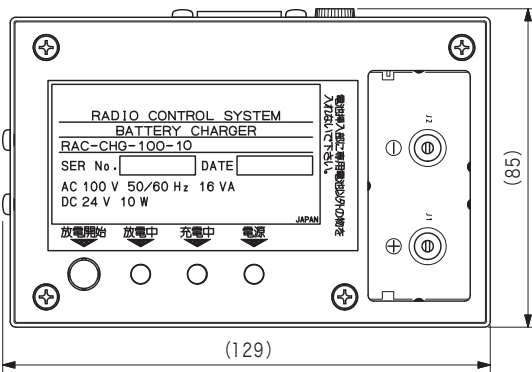
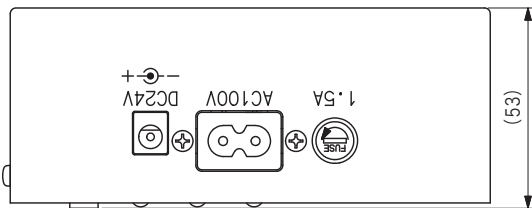
## ● Transmitter



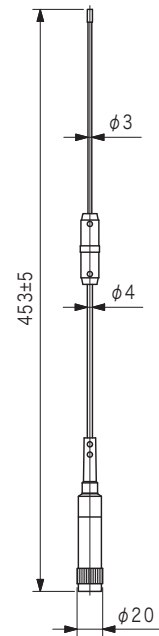
## ● Receiver



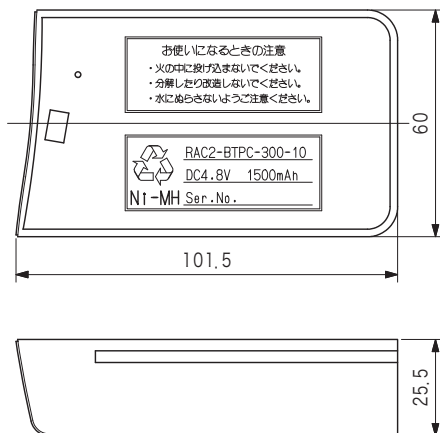
## ● Charger



## ● Receiving antenna



## ● Battery



## ● Control unit

