

# RC4 Digital Ripple Control Receiver - Time Switch



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## Description

RC4 is a high quality single chip ripple control receiver and time switch, both in one device. It can be used in tariff switching applications as well as in load switching applications. RC4 operates in both modes (ripple control and time switch) simultaneously.

If ripple control system is not in function yet, but all parameters are known, RC4 can be installed as time switch device. It operates

using DIN43861-301 specified parameters. As soon as ripple control starts functioning, RC4 will recognize signal and begin receiving telegrams.

As ripple control receiver, RC4 can operate with any type of conventional telegrams, and DIN43861-301 telegrams.

RC4 is tested and certified according to standards: IEC61037, IEC61038, DIN43861-2, DIN43861-301. CE Attestation of Conformity for "CE" marking is made, too.

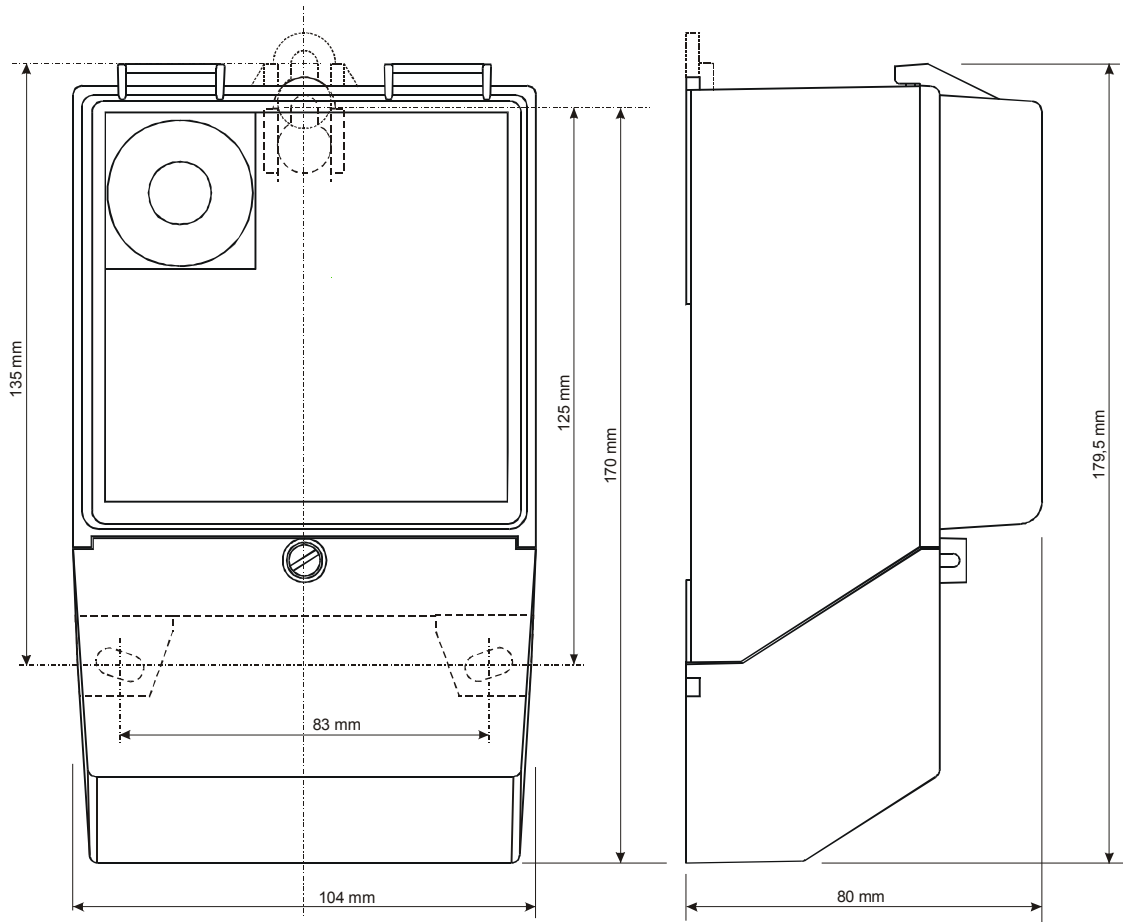
## Subtypes

According to implemented functions, RC4 can be made in a few subtypes.

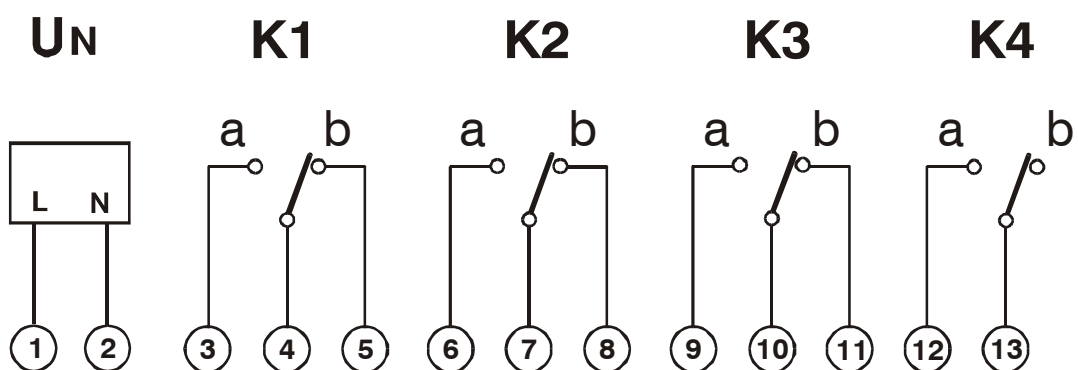
Subtype-functions			Subtype					
			P	T	U	D	L	
<b>Functions</b>	Conventional teleg. commands	Standard: relay ON, OFF and cyclic switching	√		√	√	√	
		Special	Switching to DIN43861-301 protocol				√	√
			Activate time switch program			√		
			Deactivate time switch program			√		
			Day cycle memory	√		√	√	√
	Time switch program			√	√		√	
	DIN43861-301 protocol					√	√	

## Mounting and Connection

RC4 is assumed to be mounted on a flat surface by 3 screws. Mounting holes are arranged according to DIN43861-2.



*Mounting dimensions*



*Connection diagram*

## Features

- Mounting dimensions 125x83 mm, according to DIN43861-2
- Supply voltage  $U_N$  230V, 100V (+15%;-20%), 50 Hz
- Power consumption < 0,8 W / 9 VA cap
- Control frequency  $f_s$  160 Hz-1400 Hz
- Operate voltage  $U_f$   $\geq 0,5\% U_N$  (programmable)
- Non-operate voltage  $U_{nf}$   $\leq 0,3\% U_N$  (programmable)
- Filtering A/D converter + digital signal processing
- Control signal voltage measuring
- Decoding conventional ripple control telegram up to 255 pulses
- Decoding telegrams according to DIN43861-301
- Operates according to DIN43861-301 switching programs
- Cyclic and timer operation
- Programmable relays action at power on
- Programmable relays states at power off
- Real time clock features:
  - Time base  $Q = 32,768 \text{ kHz}$
  - Accuracy better than  $5 \times 10E-6$  (at ref. temperature +23°C)
  - Temperature compensation: better than  $1 \times 10E-5$  (-25 to +70 °C)
  - Operation reserve time
    - GOLD capacitor 40/60/100h
    - Li battery 35 mAh 10 years
- Output relays: up to 4 bistable, magnetic latch:
  - Soldered type
    - Switching current  $I_c \leq 16 \text{ A}$ ,  $\cos\varphi=1$ ; 8A,  $\cos\varphi=0,4$
    - Switching voltage  $U_c \leq 400 \text{ Vac}$
    - Life cycles  $> 400000$  ( $I_c= 5A$ ) ;  $> 120000$  ( $I_c=10A$ )
  - PLUG-IN type: up to 3
    - Switching current  $I_c \leq 25 \text{ A}$ ,  $\cos\varphi=1$ ; 10A,  $\cos\varphi=0,4$  or 60/40A,  $\cos\varphi=1$ ;
    - Switching voltage  $U_c \leq 400 \text{ Vac}$
    - Life cycles  $> 400000$  ( $I_c= 5A$ ) ;  $> 120000$  ( $I_c=10A$ )
- Climatic conditions:
  - Operating temperature range -25°C to +70°C
  - Housing protection IP53
  - Terminal cover protection IP31
- Standards:
  - IEC 62054-11 (IEC 61037/CELENEC HD434 ,VDE 0420)
  - IEC 62054-21 (IEC 61038)
  - IEC 62052-21 (IEC 61037 and IEC 61038)
  - DIN43861-301
  - DIN43861-2
  - IEC 62056-21 (IEC61107)
- Serial communication interface: asynchronous, 4800 Bauds, 8N1
- PLUG-IN EEPROM module for parameters
- IR communication interface according to EC61107
- Operation of RC4 can be displayed on PC computers in real time
- All RC4 parameters are programmable using serial communication interface:
  - Control signal frequency
  - Min. operate/ max. non-operate control signal level

- PON/POFF object state
- Telegram timing
  - Nb. of pulses
  - Nb. of pulses for selection
  - First DIN43861-301 pulse in conventional telegram
  - Start pulse duration
  - Start pause duration
  - Pulse duration
  - Pause duration
- Assigning meaning to pulses
  - Selection pulses (neutral, 0, 1)
  - Command pulses (affect the objects, start DIN43861-301 protocol)
  - Cyclic functions synchronization

**Ordering data**

Ripple Control Receiver- Time Switch .....	RC4-	-	-	-	-	-	-	-	-
Conventional receiver only .....	P								
Time Switch only .....	T								
P type + Time Switch + LCD .....	U								
DIN 43861-301 receiver .....	D								
D type +LCD .....	L								
Relays-16A, soldered: K1,K2,K3,K4..	16A								
-25A, PLUG-IN, K1,K2,K3 .....	25A								
-40/60A, PLUG-IN, K1,K2,K3 ..	40A								
Relay K1 installed .....		1							
K1 not installed .....		0							
Relay K2 installed .....			1						
K2 not installed .....			0						
Relay K3 installed .....				1					
K3 not installed .....				0					
Relay K4 installed (16A soldered) .....					1				
K4 not installed .....					0				
Supply voltage 230 V .....						2			
Supply voltage 100 V .....						1			
Operation reserve:-GOLD C 40h .....							C4		
-GOLD C 60h .....							C6		
-GOLD C 100h .....							C9		
-Li battery 35 mAh .....							B3		
.....-NO .....							(no marking)		
IEC61107-IR interface .....							I		
RS232 to optical interface .....							(no marking)		
PLUG-IN EEPROM module <sup>1</sup> .....								E	

**Example:**

RC4-U-16A0100-2C4IE      RC4 conventional ripple control receiver and time switch, LCD, relays 16A soldered, K2 installed, supply voltage 230 V, Back-up supply: GOLD C 40h, IEC61107-IR interface, PLUG-IN EEPROM module.

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<sup>1</sup> EPROM module can be used only with PLUG-IN relays and without RS232 interface