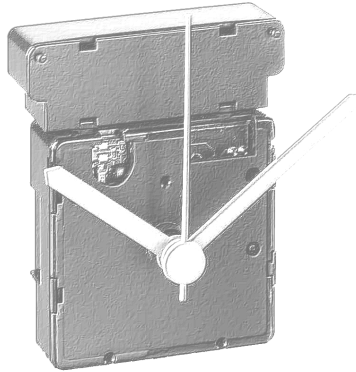


**PRODUCT
SPECIFICATION
731XXX**

Doc. No. **583 172**

**Version Date:
19.05.03**

**Automatic switching
40/60 kHz
JJY RC-Movement**



U.T.S. Präzisionstechnik GmbH

Address:

***U.T.S. Präzisionstechnik
GmbH***
Gewerbestr. 31

Written by:
M. Schneider

Dept.:
R & D

Checked:

Dept.:

Customer:

NN

**Checked by
customer:**

Dept.:

Description:

Fully automatic RC-movement, which receives and adjusts to the Japanese JJY timecode transmitter.
Automatic functions are: Initial setup with receiving and adjusting of hands, automatic switching to the transmitter frequency (40/60kHz) with best reception.
Checking of internal time during normal run and adjust hands position to correct time.

List of Changes

| Description (shortform) of changes | | Page | Date | Changed pages copied to |
|---|-----------|------|----------|-------------------------|
| Description | Name | | | |
| 1st version | Schneider | | | |
| delay of light and receiving time per frequency changed | Schneider | 4 | 09.05.03 | |
| method for hands setting, auto.receive-manual setting | Schneider | 4, 5 | 28.08.03 | |
| Add HighTorque table in 3.1.2 | Schneider | 6 | 22.07.04 | |

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1.Introduction

The discribed movement is a two motors, 3 hands analog RC-movement, designed for use with the japanese timecode transmitter **JJY 40** and 60kHz.

It is able to switch **automaticly** between the two frequencies to enable best reception in any place of Japan.

Initial setting function and error correction are automatic. The movement starts automaticly after put in the battery, without pressing any knob.

A "**handssetting**" function for easy assembly and a "**receive by hand**", are provided. If no reception is possible, the movement can also be run in "**quarz mode**".

customer: NN

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2.Function

After putting in a battery, the hands are driven to one of the positions 4:00, 8:00 or 12:00. The one which is closest to the actual position of the hands will be used.

After the hands have reached this position the motors will be stopped and the receiver is switched on. First the clock tries to get the information from the 40kHz transmitter (most of the time this will be successful) and after about 1 minute without success, the receiver will turned over to the 60kHz. If this is not successful within another about 1 min. the receiver will be switched again to 40kHz and so on, until receiving has success.

After the receiving process has finished the hands are driven to show the correct time and the movement starts normal run.

During normal run the movement tries to connect the transmitter every two hours and checks internal time with this information. The frequency of success(40 or 60kHz) is saved inside the movement and will be used for start.

A correction is done if necessary (if a difference between received and displayed time occurs).

The correct hands position is checked two times per day and automaticly corrected if necessary.

2.1 Special functions

None

2.2 Hands setting help function

The movement has a hands setting help function. This can be started by shortcutting the two special pins, before plug in the battery. Then put in the battery and the gear will be driven staight to the 12 o'clock position. After the motors stopped, set all hands on their shafts exactly adjusted to 12 o'clock, remove the shortcut and restart the movement again.

2.3 Automatic Receiving – Manual Setting Mode

After put in the battery the movement first drives the hands to one of the initial places (see Pt. 2.). When the hands stopped the receiver is switched ON automatically. While the time of receiving the user has the ability to press the knob on the back-side of the movement and adjust the hands to correct place manually. The movement is now in "Manual Setting Mode", until the battery is removed and put in again for a new receiving. While a movement is in manual setting mode, it will never try to receive the JJY-signal, it's running like a quartz-clock.

If the movement has run in automatic receiving mode, the knob on the backside has changed it's function to "receive by hand", if the knob is pressed in this mode, the hands will be driven to one of the initial places and the receiver will be switched on.

Attention: For switching from one to the other mode (both directions) it's necessary to remove and replug the battery!

3. Environment

3.1 Conditions of use

The movement is designed for in house use with a single AA-size alkaline battery
Temperature range is -5 to + 55 °C and max. humidity of 95%

3.1.1. Technical Data

Technical Data for RC-Movement 731 XXX JJY 40 / 60 kHz

| Technical Data | Standard |
|-----------------------------------|----------------------------------|
| Receiving frequency | 40/60 kHz |
| Dimensions | acc. drawing page |
| Mounting diameter | 77mm |
| Battery | A A / LR6 (Alkaline recommended) |
| Operating voltage | 1,25 - 1,7 V |
| Current consumption | 160 µA |
| Battery life time | 1 year |
| Operating temperature range | -5°C to+55°C |
| Storage temperature | -20°C to+70°C |
| Receiving time | 2 - 10 min |
| Settingtime after reception | max. 2min, 50 sec. |
| Autom. summer-winter time setting | max. 2min .35 sec. |
| Operating noise (DIN 8325) | 32 dBA |
| Antenna | Ferrite core internal |
| Antenna adjust tolerance 60kHz | ±250 Hz |
| Antenna adjust tolerance 40kHz | ±500 Hz |
| Reception | 14x / day |
| Peak currentl | 9mA |
| Sensitivity (40/60kHz) | <70 / 50 µV/m *** |
| Quartzadjustment (DIN 8325) | 0,65 s/d |

All dates measured at T = 25 °C (if not specified)

** The final sensitivity [µV/m] belongs to the construction of the clockhousing.
The final sensitivity is to be measured with the final product.

3.1.2. Mechanical data

| | | | |
|--------------------------------------|-------------------------|--------------------------|----------------------------|
| Mounting centrscrew | M8 x 0,75 | | |
| Max.torque for fixation nut | 100 Nm | | |
| Max. mounting pressure for hands | 25N (h/min) , 10N (sec) | | |
| Weight without battery | 62g | | |
| Max. weight on hanger (metalhanger) | 25N | | |
| | | | |
| Torque : | | Standard (7310XX) | High Torq. (7313xx) |
| second | torque (1,35V) | 50 µJNm | 100 µNm |
| minute | torque (1,35V) | 300 µJNm | 700 µNm |
| | | | |
| | | | |
| Spec.for length of hands see drawing | 582086 | | |
| Recommendation for bushing | 582017, 582279, 581112 | | |
| Accessory | 582087 | | |

4. Documentation

The documentation for the built in electronic circuit will be made by **U-T-S** and contents:

- functional description
- technical data
- case drawing sheet with connections assingment

5. Using Period

Not specified

6. Marking

Refer to drawing No. 583 171

7. Enclosure

- Appendix1

Case drawing sheet No. 583 171