Transmission distance	: maximum 25 meters in open field
Power source	
Projection Clock	: 2 x AA, IEC LR6, 1.5V batteries
	(Alkaline battery recommended)
	Or
	AC power source with input 230VAC 50Hz
	(Use the provided AC-DC adapter only)
Outdoor Temperature Transmitter	: 2 x AAA, IEC LR3, 1.5V batteries
	(Alkaline battery recommended)
Battery life	: Approximately 12 months
Dimensions (L x W x H)	
Projection Clock	: 122.4 x 37 x 91mm
Outdoor Temperature Transmitter	: 59 x 22 x 65 mm

MAINTENANCE

- Avoid placing the Projection Clock in areas prone to vibration and shock as this may damage and inaccurate readings.
- Avoid exposure to sudden changes in temperature such as direct sunlight, extreme cold and wet or moist conditions.
- When cleaning the display and casing, use a soft damp cloth only.
  Do not use solvents or souring agents as they may mark the LCD and casing.
- Do not submerge the Projection Clock into water.
- Do not attempt to make any repairs to the Projection Clock. Return it to its original point of purchase for repair by a qualified engineer. Opening and tampering with the unit may invalidate its guarantee.

3. Using other electrical products such as headphones or speakers operating on the 433MHz-signal frequency may prevent correct signal transmission or reception. Neighbors using electrical devices operating on the 433MHz-signal frequency can also cause interference.

Note:
When the 433 MHz signal is received correctly, do not re-open the battery cover of either the transmitter or Projection Clock, as the batteries may spring free from the contacts and force a false reset. Should this happen accidentally then reset all units (see **"Setting up"** above) otherwise transmission problems may occur.

The transmission range is around 20 - 25 m from the transmitter to the Projection Clock (in open space). However, this depends on the surrounding environment and interference levels. If no reception is possible despite the observation of these factors, all system units have to be reset (see **"Setting up"** above).

POSITIONING
The Outdoor Temperature Transmitter has a holder and is supplied with screws and double-sided tape for affixing by either method preferred. Before securing the transmitter to the desired location, **check that the temperature can be received first.**

To affix by screw, follow these steps:
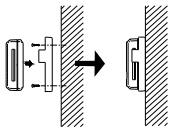
1. Using the holes in the holder as a guide, mark the holes on the drilling surface.
2. Drill the marked area to the required depth.
3. Screw the holder onto wall and click the transmitter into holder.

To affix using double-sided tape, follow these steps:
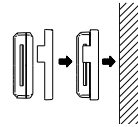
1. Clean both surfaces before affixing double-sided tape.
2. Peel one side of the tape and press it firmly against the back of the holder.
3. Now peel the other side of the tape and stick the holder firmly onto the surface. Do not stick onto bricks, enamel finished or greasy surfaces.

Note: Do not secure the transmitter on metal frames or doors because this may cause interference with 433MHz transmission.

BATTERY CHANGE
It is recommended to replace the batteries in the unit on an annual basis.

Please help in the preservation of the environment. Return used batteries to an authorized depot.

SPECIFICATIONS
Projection temperature display range	: -29°C to +69°C with 1°C resolution
Projection distance	: maximum 2 meters
Temperature measuring range	
• Indoor	: 0°C to +49°C with 0.1°C resolution
• Outdoor	: -29.9°C to +69.9°C with 0.1°C resolution
Temperature checking interval	
• Indoor	: every 10 seconds
• Outdoor	: every 5 minutes
Outdoor temperature transmission	: every 1 minute
Transmission frequency	: 433.92 MHz

2. Set the time by using the AL/HR and the MODE/MIN keys respectively.
3. Press the SNOOZE key to enter the **"Calendar setting"** mode or wait for about 8 seconds for automatic timeout.

Note:
The Projection Clock will still try and receive the signal despite the time being manually set. When it receives the signal, then the DCF tower icon will stay fixed on the LCD. If reception has been unsuccessful, then the DCF tower icon will disappear but reception will still be attempted the following hour.

CALENDAR SETTING
The date default of the Projection Clock is MO 1.1. in the year 2000. Once the radio-controlled time signals are received, the date is automatically updated. However, if the signals are not received, you can adjust the date manually. **To do this:**
1. The year digits start flashing. Use the MODE/MIN key to set the year (the range runs from 2000 to 2029).
2. Press the SNOOZE key again to enter the month and date setting (flashing).
3. Use the AL/HR key to set the day and the MODE/MIN key to set the month.
4. Press the SNOOZE key again to enter the weekday setting (flashing).
5. Use the MODE/MIN key to set the weekday.
6. Press the SNOOZE key once more to confirm all settings and exit or wait for about 8 seconds for automatic return to the normal mode display.

TIME ZONE SETTING

Time zone "0" =
Central Europe
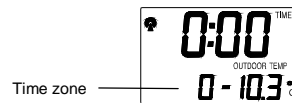
Time zone ──────

To change to a different time zone (±9 hours):
1. In normal mode display, press and hold down the MODE/MIN key to enter the time setting mode.
2. Use the MODE/MIN key again to select the desired time zone. Each press changes the digits by 1 hour.
3. When the desired time zone is selected, press the SNOOZE key to confirm and exit or wait for about 8 seconds for automatic return to the normal mode display.

Note:
When the time zone is being changed to another time zone other than "0", the calendar will not be displayed.

BACK-LIGHT
The LED back-light is automatically switched ON when any keys are pressed. The back-light will be switched on for approximately 2 seconds before automatically switching OFF. However, if any of the keys are pressed and held down, then LED back-light will remain ON constantly until the key is released.

ABOUT THE OUTDOOR TEMPERATURE TRANSMITTER
The range of the Outdoor Temperature Transmitter may be affected by the temperature. At cold temperatures the transmitting distance may be decreased. Please bear this in mind when positioning the transmitter. Also the batteries may be reduced in power.

CHECKING FOR 433 MHz RECEPTION
If the outdoor temperature data is not being received within three minutes after setting up (the display shows "- -. - °C" on the outdoor temperature section of the Projection Clock after 4 attempts), please check the following points:
1. The distance of the Projection Clock or transmitter should be at least 2 meters away from any interfering sources such as computer monitors or TV sets.
2. Avoid placing the temperature transmitter onto or in the immediate proximity of metal window frames.

TO ACTIVATE/DEACTIVATE THE ALARM:
Press the AL/HR key. The alarm icon (((•))) will appear/disappear indicating that it is ON or OFF.

Note:
The maximum duration of the alarm ringing is 1 minute 36 seconds.

SNOOZE SETTING
The snooze time is set as default for 5 minutes by the manufacturer. The snooze mode will be activated from the start of next minute after the SNOOZE key was pressed – it does not count the current minute that it was pressed in.
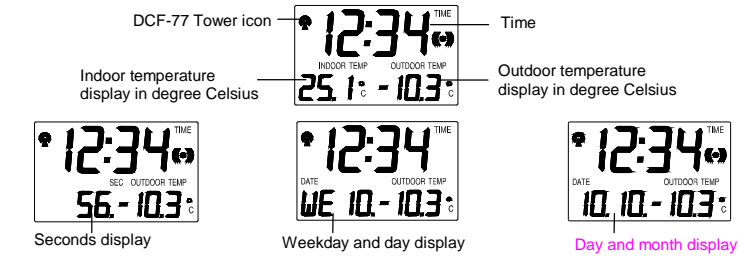
To use the snooze feature, simply press the SNOOZE key when the alarm is sounding and the alarm will snooze for 5 minutes before automatically sounding again. When the alarm is snoozing, the alarm icon (((•))) will start flashing indicating that the alarm is active but is in Snooze mode.

To stop the snooze function when it is in snooze period, press and hold the SNOOZE key until a "Beep" is sounded. You can also press the AL/HR key or the MODE/MIN key once to stop the snooze function.
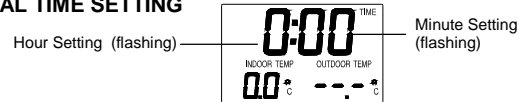
LCD SCREEN DESCRIPTIONS
The Projection Clock can display information of time; indoor and outdoor temperature; second; weekday and day; and day and month on the LCD only. **The projection can only display the time and the outdoor temperature**.

The clock LCD can toggle between the 4 display modes when pressing the MODE/MIN key:

DCF-77 Tower icon — Time
Indoor temperature display in degree Celsius — Outdoor temperature display in degree Celsius

Seconds display — Weekday and day display — Day and month display

MANUAL TIME SETTING

Hour Setting (flashing) — Minute Setting (flashing)

In some cases after inserting the batteries, the Projection Clock may not be able to receive the DCF-77 signal. In this situation, the time should be manually set (before manually set, see **"Checking for DCF-77 Reception"**).
1.   Immediately after inserting the battery and before hearing a 'Beep' sound, press and hold down the MODE/MIN key until the time on the LCD starts flashing. This step shall be done before a 'Beep' is sounded, else all the keys will not operate until the Projection Clock can receive the signals!

DCF-77 RADIO CONTROLLED TIME

The time base for the radio-controlled time is a Cesium Atomic Clock operated by the Physikalisch Technische Bundesanstalt Braunschweig which has a time deviation of less than one second in every one million years. The time is coded and transmitted from Mainflingen near Frankfurt via frequency signal DCF-77 (77.5 kHz) and has a transmitting range of approximately 1,500 km. The Projection Clock receives this signal and converts it to show the precise time and so when within this range the received time is completely accurate.

CHECKING FOR DCF-77 RECEPTION

The Projection Clock will automatically start scanning for the DCF-77 frequency signal after the battery is inserted. In normal surroundings (for example away from interfering sources such as TV sets), it takes between 3 - 5 minutes to receive the signal. If after 10 minutes of inserting the batteries into the alarm clock and the DCF-77 signal is not received, then check the following list before manually setting the time (see **"Manual Time Setting"**):
1. The distance of the Projection Clock should be at least 1.5 - 2.0 meters away from interfering sources such as computer monitors or TV sets.
2. Avoid placing the Projection Clock onto or in the immediate proximity of the materials made of metal such as doors, window frames or other structures.
3. Within thick concrete rooms such as basements and tower blocks, the DCF-77 signal is naturally weaker. In extreme cases, place the Projection Clock closer to a window and/or point its front or rear towards the general direction of the Frankfurt/Main transmitter (avoid positioning within close proximity of metal frames or structures).

Note:
Users may be located in areas where atmospheric disturbances are the direct cause for not receiving the DCF-77 frequency signal. During nighttime, atmospheric disturbances are usually less severe and reception is possible in most cases. With a single daily reception, it is adequate for the alarm clock to keep time deviation to below 0.5 seconds in a period of 24 hours.

When the Projection Clock is trying to receive the DCF signal, the reception icon will flash on the LCD. Once the signal is "locked", the DCF-77 tower icon will stay fixed on LCD and the received time will automatically correct the manually set time. As well as the time, the date will also be received by the Projection Clock and will be displayed accordingly in the calendar section of the LCD.

ALARM SETTING
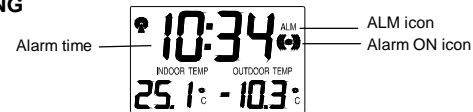
To display the alarm time:
Press and hold the SNOOZE key for 3 seconds, the alarm time and ALM icon will be displayed on the LCD screen. However once releasing the SNOOZE key, it will automatically display back the current time.

To set alarm:
1. Press and hold the AL/HR key, the (((•))) and ALM icon will appear and the alarm time on the LCD will start flashing.
2. Set the hour and minute of the desired alarm time by use of the AL/HR (hour) or the MODE/MIN (minute) keys respectively.
3. Once the alarm time is set, press the SNOOZE key to confirm and exit or wait approximately 8 seconds for automatic timeout.

- Malfunction on the units.
- Batteries replacement.

For resetting, remove all batteries from the units and unplug the AC-DC adapter from any power source. Wait at least for **3 minutes** before powering up the Projection Clock again. Proceed from step 1 in **"Setting Up"** above.

FUNCTION KEYS

The Projection Clock uses the following keys:

SNOOZE	:	Activate or deactivate snooze function.
	:	Show alarm time.
	:	Activate the projection at the highest brightness level.
	:	Exit the setting modes.
	:	Back-light On.
AL/HR	:	Enter alarm setting mode.
	:	Activate or deactivate alarm.
	:	Stop alarm and snooze function.
	:	Set the hour and day.
	:	Back-light-On.
MODE/MIN	:	Toggle between indoor temperature, second, weekday-day, and day-month display mode.
	:	Enter manual time setting mode and time zone setting mode.
	:	Stop alarm and snooze function.
	:	Set the minute, weekday, month and year.
	:	Back-light On.
☼ (BRIGHTNESS key)	:	Set the brightness level of the projection (in A/C power mode only). (4 levels: High, Medium, Low, OFF).

|		
	:	Back-light On.
DISPL	:	Toggle between the time and outdoor temperature or automatic alternates time/outdoor temperature every 5 seconds display mode for projection.
	:	Back-light On.
◂∴▸ (DIRECTION key)	:	Project the image direction (can display 4 different orientations).
	:	Back-light On.

HOW TO USE THE PROJECTOR

The projector projects the current time and the current outdoor temperature onto a wall or ceiling, preferable within a darkened room. It can be adjusted forward and backward 180º for maximum projection range. Also, the projection image can also be adjusted in 4 upright positions, each with a rotation of 90º.

To project the time or the outdoor temperature onto a flat surface:
1. Point the projection lens to the appropriate direction (maximum distance of the projection is 2 meters).
2. Press the DISPL key to select the desired mode for the projection. There are 3 display modes:
   M 0 – projecting the current time only.
   M 1 – projecting the current outdoor temperature only.
   M 2 – projecting by switching the display of the current time and the current outdoor temperature for every 5 seconds.
3. Adjust the intensity of the projector light with the ☼ key (The intensity of the projector light cannot be adjusted when operated in battery mode).
4. Adjust the projection image in an upright position with the ∴ key.

To connect the AC-DC adapter:
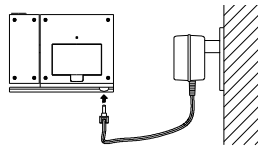
Important!
Make sure that your household voltage is 230V! Otherwise it can result in damaging your Projection Clock.

1. Insert the 2 x AAA, IEC LR3, 1.5V batteries into the transmitter (See **"To install and replace batteries in the Temperature Transmitter"** above).
2. Within 3 minutes, connect the AC-DC adapter to a wall socket. Plug the adapter into the jack at the bottom of the Projection Clock. All the segments of the LCD and the projection will light up briefly; and a "beep" will sound. Then the time as 0:00, the indoor temperature, and the outdoor temperature as --.- °C will be displayed.
3. The Projection Clock will now start receiving outdoor temperature signal. Once the remote temperature has been received and is displayed on the Projection Clock, the DCF-77 time code reception is automatically started. This takes typically between 3-5 minutes in good conditions. This time period is an excellent opportunity to locate the transmitter in suitable location. In order to ensure sufficient 433 MHz transmission however, this should, under good conditions be no more than 20 - 25 meters from where the Projection Clock will be finally positioned (see notes on "**Positioning**" and "**Checking for 433 MHz Reception**").
4. If after 10 minutes the DCF time has not been received, manually enter the time. The clock will automatically attempt each hour to receive the DCF time. When this is successful, the received time will

override the manually set time. The date is also updated with the received time (Please refer also to notes on "**DCF-77 Radio Controlled Time**" and "**Manual Time Setting**").

Your Projection Clock is now operational!

Note:
If the Projection Clock is powered through the AC-DC adapter, the projection will be constantly ON at the highest brightness level unless the brightness level is manually changed to a lower brightness level afterward. The brightness of the projection can be changed accordingly to enhance the clarity of the projected time by pressing the ☼ key.

If the Projection Clock is battery operated, only when the SNOOZE key is pressed, the projection will turn ON at its highest brightness level. The intensity of the brightness level of the projection cannot be adjusted. Once the SNOOZE key is released, there will be no projection.

Important!
If the DCF-77 signal is not being received, no key functions can be used. In that case, either wait for the next reception of the DCF signal or proceed to manual time setting after reset of the clock for activation of the key function.

## BATTERIES POWERED WITH THE USE OF AC-DC ADAPTER
If the Projection Clock is first powered by batteries and the AC-DC adapter is subsequently used for extended period of time, the main power source of the Projection Clock will switch to AC power. The batteries will then act as a backup power source in the case of power failure.

RESETTING
The Projection Clock and the transmitter need to be reset when one of the following conditions occur:
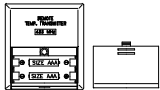- Unsuccessful 433MHz signal reception.

TO INSTALL AND REPLACE BATTERIES IN THE PROJECTION CLOCK
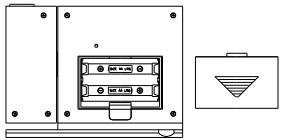
The Projection Clock uses 2 x AA, IEC LR6, 1.5V batteries. To install and replace the batteries, please follow the steps below:
1. Insert finger or other solid object in the space at the bottom center of the battery compartment and lift up to remove the cover.
2. Insert batteries observing the correct polarity (see marking).
3. Replace compartment cover.

TO INSTALL AND REPLACE BATTERIES IN THE TEMPERATURE TRANSMITTER

The transmitter uses 2 x AAA, IEC LR3, 1.5V batteries. To install and replace the batteries, please follow the steps below:
1. Remove the cover.
2. Insert batteries observing the correct polarity (see marking).
3. Replace the battery cover on the unit.

SETTING UP
The Projection Clock can be either batteries-operated or powered by the provided AC-DC adapter.

BATTERIES INSTALLATION
1. Insert the 2 x AAA, IEC LR3, 1.5V batteries into the transmitter (See **"To install and replace batteries in the Temperature Transmitter"** above).
2. Within 3 minutes, insert 2 x AA, IEC LR6, 1.5V batteries into the Projection Clock (See **"To install and replace batteries in the Projection Clock"** above). All the segments of the LCD will light up briefly and a "beep" will sound. Then the time as 0:00, the indoor temperature, outdoor temperature as "--.- ºC" will be displayed.
3. The Projection Clock will now start receiving outdoor temperature signal. Once the remote temperature has been received and is displayed on the Projection Clock, the DCF-77 time code reception is automatically started. This takes typically between 3-5 minutes in good conditions. This time period is an excellent opportunity to locate the transmitter in suitable location. In order to ensure sufficient 433 MHz transmission however, this should, under good conditions be no more than 20 - 25 meters from where the Projection Clock will be finally positioned (see notes on "**Positioning**" and "**Checking for 433 MHz Reception**").
4. If after 10 minutes the DCF time has not been received, manually enter the time. The clock will automatically attempt each hour to receive the DCF time. When this is successful, the received time will override the manually set time. The date is also updated with the received time (Please refer also to notes on "**DCF-77 Radio Controlled Time**" and "**Manual Time Setting**").
Your Projection Clock is now operational!

Note:
If the batteries are used as the main power source:
1. Projected image brightness, alarm volume and back-light strength would be weaker.
2. Battery life time would be much less than 1 year.

TO USE THE PROJECTOR POWER ADAPTER
The unit comes with an AC-DC adapter for using the projector for an extended period of time, such as throughout the night.

RADIO CONTROLLED PROJECTION CLOCK WITH OUTDOOR TEMPERATURE TRANSMITTER
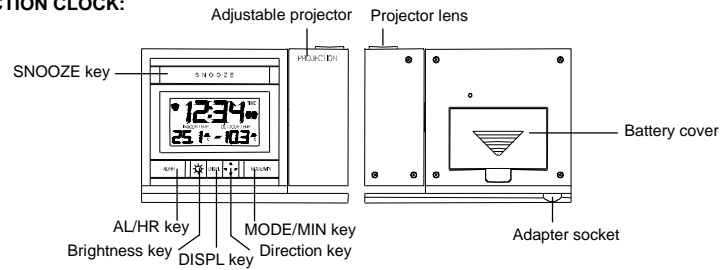**Instruction Manual**

INTRODUCTION
Congratulations on purchasing this Projection Clock with DCF-77 radio-controlled time. The operation of this product is simple and straightforward and by reading this operating manual, users will receive the optimum benefits of all its features.

FEATURES
PROJECTION CLOCK:

Adjustable projector Projector lens

SNOOZE key

Battery cover

AL/HR key   MODE/MIN key
Brightness key   Direction key
DISPL key   Adapter socket

- DCF-77 Radio controlled time with manual setting option
- 24 hours time display (hour, minute, second)
- Calendar display (weekday, date, month)
- Alarm setting with snooze function
- Time zone (±9 hours)
- Temperature display in degree Celsius
- Indoor temperature display
- Outdoor temperature display
- Time projection display (hour and minute)
- Outdoor temperature projection display (degree Celsius)
- Alternate projection display mode selectable
- LED back-light
- Projection with adjustable brightness and projection orientation possible

OUTDOOR TEMPERATURE TRANSMITTER:
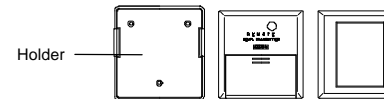
Holder

- Remote transmission of outdoor temperature via 433 MHz signals to Projection Clock.
- Wall mounting holder.