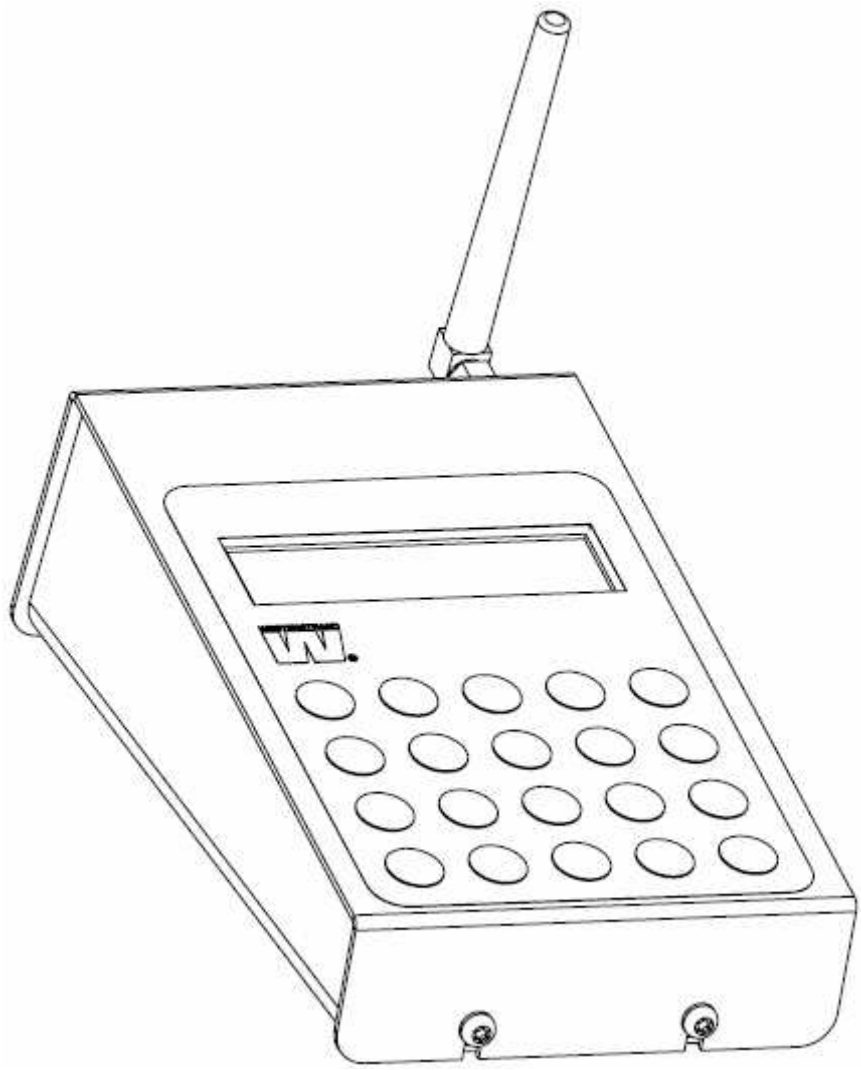
Instruction Manual for 20-button Remote Control

Battery Powered Version with Radio Transceiver



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Introduction

This instruction manual contains important information for operating the 20-button remote control (herein referred to as *remote* or *remote control*). This version of the manual applies to the remote control fitted with re-chargeable batteries and radio transceiver. The hard-wired version of the remote is covered in another manual.

The remote is equipped with a 20-button keyboard and an LCD for user interaction. Optionally the remote can be fitted with a control handle for the 24-second rule. The buttons on the keyboard have different functions depending on the software version and program context.

Switching Remote Control On / Off

The remote is started by pressing and holding the button located at the top-left of the keyboard (indicated by a stand-by symbol). As soon as the display lights up (after approx. one second) the remote is booting up and the button can be released. After a few seconds information is displayed.

To turn the power off again hold the button located at the top-left of the keyboard for approx. two seconds. A question is displayed allowing the remote to be turned off.

In the right-most position of the LCD a power symbol is displayed. This gives an indication of the current status of the batteries. In some cases the symbol may be obscured by other information on the LCD. Normally the power symbol should display a full battery.

When the power symbol shows a half-full battery this means the batteries need to be charged as soon as possible. If usage continues and the battery voltage drops below a certain point a warning message will be displayed prompting the user to charge the batteries. If this warning is ignored the remote control will switch itself off after a short period of time.

See section below for further information on batteries and charging.

Navigating Menus

When the remote control is started the home screen is displayed. From here it is possible to initiate functions or change settings.

- The **F** (Function) key is used to bring up menus and cycle through menu options.
- The **–** and **+** keys may also be used to cycle back or forward through menu options.
- The **Y** (Yes) key is used to move one level into the menu structure or to start a function if already at the end level. When a question is displayed this key represents yes.
- The **N** (No) key is used to move one level back in the menu structure. The function is similar to that of the ESC-key on a personal computer. If a question is displayed this key represents no.

Charging and Managing the Batteries

To maximize the life time of the remote control and the batteries it is important to read and follow the instructions in this section. Under normal circumstances and with fresh batteries the remote control will operate for at least 8 hours after a complete charge cycle.

If the remote control is stored for a longer period of time it must be fully charged first. This is to prevent the batteries to go flat from self-discharge. If this happens the batteries must be removed from the remote control and charged in an external charger.

The remote is fitted with three rechargeable 2000 mAh AA NiMH batteries. The batteries can be charged internally by the remote control or removed and charged in an external charger. The charging unit shipped with the remote is a 12 V DC adaptor capable of delivering the necessary charge current.

When the charger is plugged into a switched on remote control a charge cycle is initiated. The power symbol will alternate between a full and a half-full battery to indicate that the charge cycle has commenced. A charge cycle starts with 12 hours of normal charging. After this period the battery is trickle charged for another 3 hours. After that the remote control is turned off.

It is possible to use the remote control normally while a charge cycle is in progress. However, it is not recommended that the remote control be used with a charger constantly plugged in. This will damage the batteries since they are constantly being charged.

The remote control may get slightly warmer than normal due to energy loss during charging. This is normal. During charging the remote control should be placed in an area where air flow around the unit is not restricted.

It is possible to abort the charge cycle at any point by unplugging the charger or turning the remote control off. If a charger is unplugged and plugged back in a new charge cycle will be initiated. This is however not recommended since overcharging may damage the batteries.

If battery life time is drastically decreased and the batteries need to be replaced batteries of identical chemistry and capacity must be used.

IMPORTANT NOTICES: *The remote control needs to be switched on in order for the charge cycle to start. If the batteries have been discharged below a certain level the remote will not start up. The batteries then have to be removed and charged externally.*

The batteries should never be discharged below a certain level since this may damage the cells. The remote control will give some indication about battery status but it is the responsibility of the user to prevent over-discharge.

It is possible to use standard 1.5 V alkaline non-rechargeable batteries but if this is done it is very important that the charger is not plugged in. This may damage the batteries, the internal electronics of the remote control and / or the charger.

Radio Communications

The remote control communicates with the information display(s) using a radio transceiver circuit that utilizes the open ISM band @ 868 MHz. For optimum performance both the antenna on the remote control and on the receiving unit(s) should be pointing towards the sky. It is also recommended that a clear line-of-sight is established between the remote and the receiver(s).

If operation is being conducted in a harsh environment where radio communication is not possible the remote can be connected to the information display(s) using wire. A connection box and a special cable are needed.

Opening the Bottom Cover

If batteries or other internal parts like the program EEPROM need to be removed or changed the bottom cover needs to be opened. Make sure the remote control is switched off and unplug any charger and / or control handle that may be connected.

Make sure that proper ESD precautions are taken before opening the cover. Failure to do so may result in irreparable damage to internal electronic components.

If the remote control has recently been charged some components may be hot.

Loosen the two screws placed at the bottom of the remote control. They do not need to be completely unscrewed. Carefully separate the bottom and top cover. All electronic components are attached to the top cover.

If the program EEPROM is to be changed batteries should be removed first to avoid accidental short circuits.

When re-attaching the bottom cover to the rest of the remote make sure they align in the correct way. No considerable force should be used.