

# UCR201 USB wireless jog pendant to use with the UCCNC software user's guide

Plugin version: V1.2



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### 1. Description of the UCR201 device.

The UCR201 wireless jog pendant was designed to be used with the UCCNC software. The product is built from 2 main parts, one part is the jog pendant built into an ABS plastic enclosure with buttons and a jog wheel encoder. The other part is the USB wireless transmitter module which connects to the computer's USB port and transferring data between the PC and the jog pendant device. Using the jog pendant makes the zero point picking up and other machining routines easier and faster to setup and to do.

The jog pendant comes with a built in LCD screen which continuously showing and updating the readout values of the axis positions, the stepping mode, feedrate and the spindle's actual speed giving a feedback to the user without the need of looking onto the monitor.

### 2. Installing the device drivers

The UCR201 device drivers are automatically install with the UCCNC software. The driver files are also copied by the UCCNC installer to the UCCNC/USB\_installer\_UCR201 folder of the installation. No separate download or installation is required.

### 3. Installing the UCR201 plugin.

The UCR201 pendant plugin is automatically installs with the UCCNC software. No separate download or installation is required.

#### 4. Safety notes.

Moving objects like machine tool axes and automation equipments can be dangerous. Always make sure to keep all machine safety standards. Always install e-stop switches and the required safety equipments to your control system and make sure that the equipment controlled by our device meets all the safety standards.

Always keep the product dry and away from falling chips and dust, protect the device from taint damage.

CNCdrive Kft. cannot take responsibility for any personal injury and/or financial loss caused by any device failure or caused by following an error in this documentation.

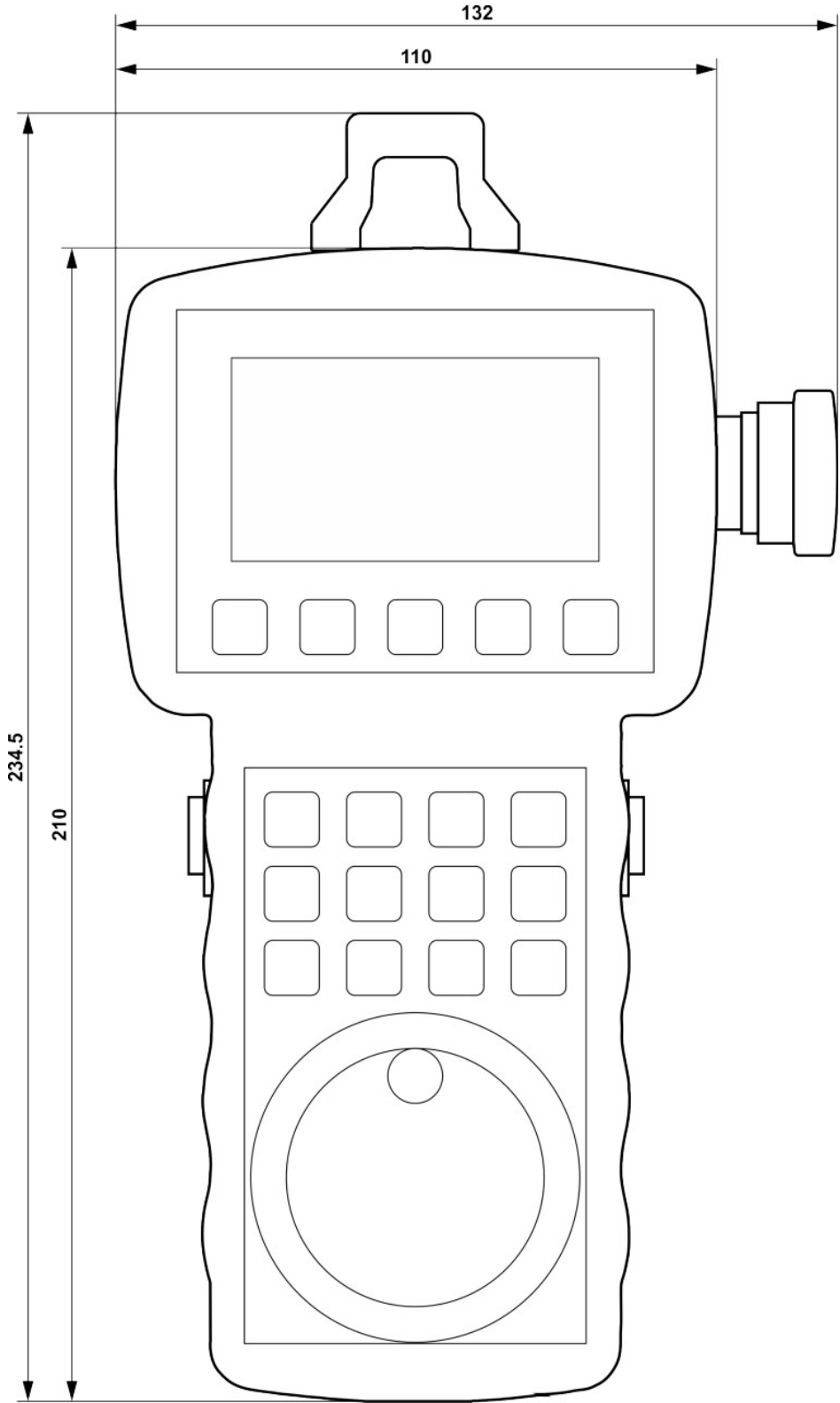
#### 5. Systems requirements.

The system requirement is the same as what the UCCNC software requires.

For more informations please read point 1.3 of the UCCNC manual.

6. Physical dimensions of the device.

The following drawing shows the dimensions of the UCR201 pendant:



## 7. Enabling the UCR201 pendant plugin.

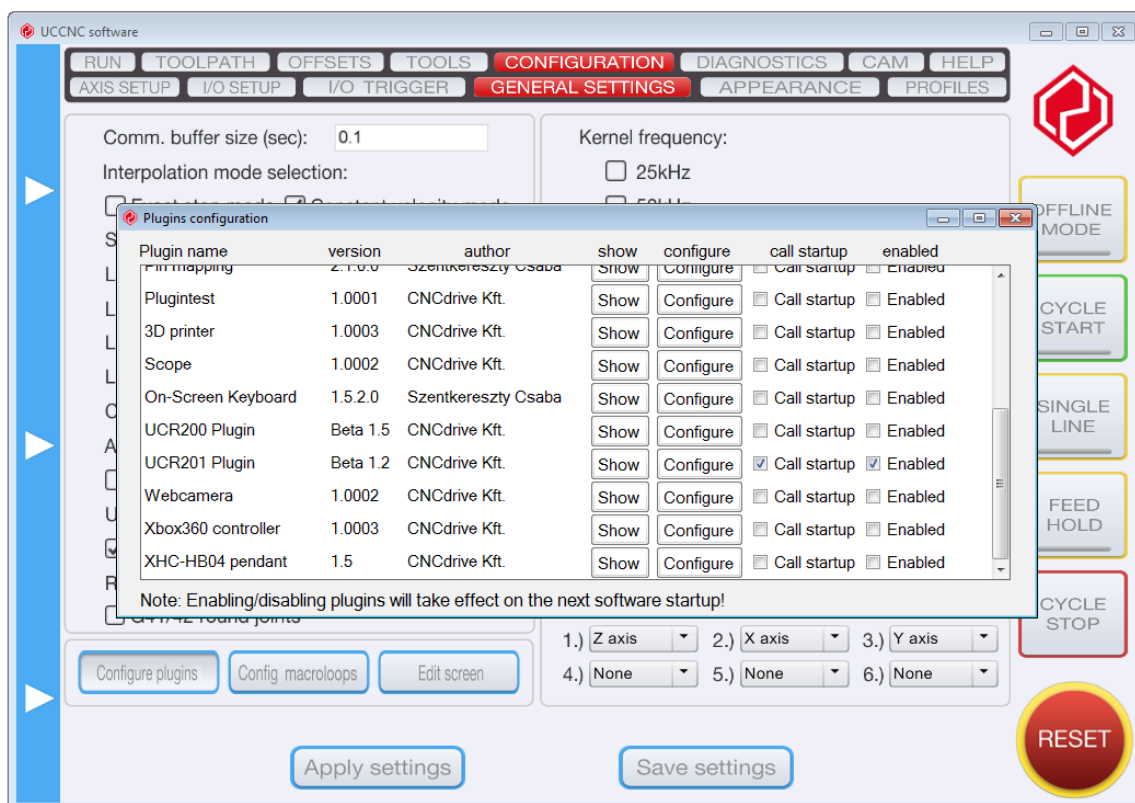
After successful installation of the UCCNC software the UCR201 plugin has to be enabled in order for the pendant to work.

To enable the plugin run the UCCNC software and navigate to the Configuration/General settings tab page and press the configure plugins button.

On the popup Plugins configuration window find the UCR201 plugin row and check the enabled checkbox to enable the plugin. If the Call startup checkbox is also checked then the plugin configuration window will open every time the software starts. If only the enable checkbox is checked then the plugin starts without showing the plugin window on startup.

After enabling the plugin the UCCNC software has to be closed and restarted for the plugin to run.

The following picture shows the plugin configuration window with the UCR201 plugin enabled:



## 8. Usage of the UCR201 pendant.

### 8.1. The plugin control window.

The plugin window contains all the configuration settings which can be done on the pendant device. To configure the device simply change the values of the parameters on the configuration window. The new settings are automatically saved

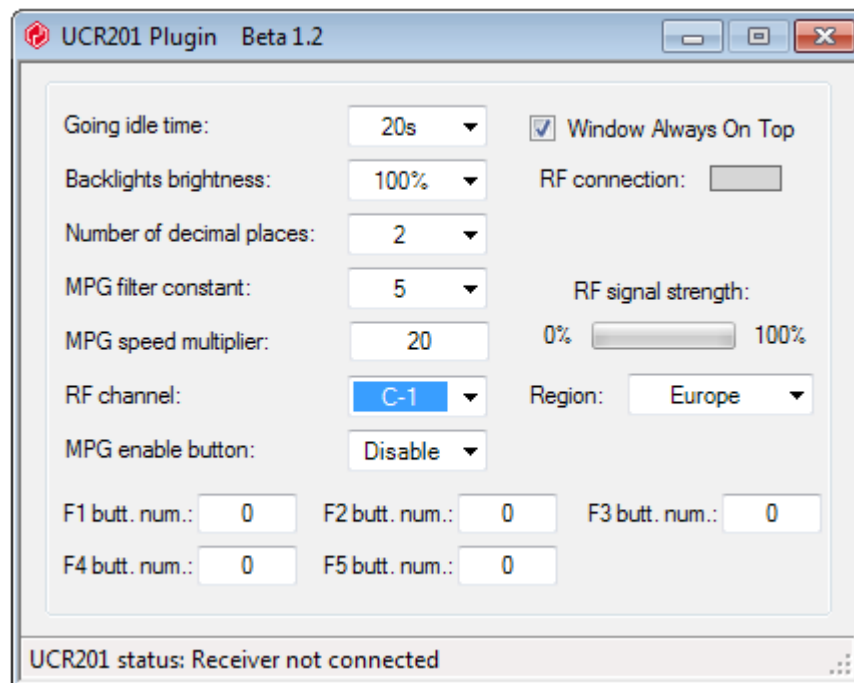
into the actually used UCCNC profile file, therefore every profile may have different settings.

The parameters are described in the following section:

- Going idle time: Is the time in seconds the device waits before turning the backlight and the LCD screen off if the buttons are not pressed and the handwheel is not moved. The value can be set between 10 seconds to 240 seconds in 10 seconds steps. The longer the time the more power the device consumes and the shorter the overall battery life will be, because the LCD screen and backlight require power to operate.
- Backlight brightness: Changes the power of the LCD backlight. The value can be set between 0 to 100% in 10% steps. The higher the brightness the more power the device consumes and the shorter the overall battery life will be, because the LCD backlight requires power to operate.
- Number of decimal places: Sets how many decimal places the numbers are shown with.
- MPG filter constant: This parameter can be tuned to make the handwheel jogging comfortable with different UCCNC axes setup parameters. The lower the value the faster the software reacts to the handwheel, but the same time it makes the motion less smooth. The optimal value depends on the particular settings and the taste of the user.
- MPG speed multiplier: This parameter sets how much the axes will move for one encoder wheel tick. The higher the parameter the more the axis will move when moved with the same encoder wheel rotational.
- RF region: The RF region is an important parameter, because it sets the base frequency of the communication. The base frequency is always on the free radio channel, but this frequency is different for the different continents. Please select the appropriate region for your location. The possible values are Europe and USA/Australia.
- RF channel: There are 8 possible radio frequency channels for both the USA/AUS bandwidth and for the European bandwidth. If more than one UCR201 devices are used in the same close proximity environment then each device must be configured to a different RF channel, otherwise their communications will interfere with each other. Please note that when changing the RF channel number then the same channel number has to be selected in the UCR201 pendant.

- MPG enable button: There are 2 pushbuttons on the 2 sides of the pendant. These buttons can be used as safety enable buttons for the MPG handwheel to protect against machine axis movement with accidental MPG handwheel movements. The possible settings are Disable to fully disable these buttons or the left button or right button or both buttons have to be pressed to enable the handwheel operation.
- F1 to F5 button numbers: The F1 to F5 buttons on the pendant are custom programmable buttons. Each button can be attached to a button code of the UCCNC software and when the button is pressed then that button function code of the UCCNC software is executed. For example attaching button code 128 to the F1 button calls the Cycle start function of the UCCNC software when the F1 button is pressed. For a complete list of the button codes please refer to the button codes document in the UCCNC/Documentation folder of the software installation.
- RF signal strength: Shows how strength the radio frequency connection is between the pendant and the USB transceiver.
- Window always on top: Check this checkbox to make the plugin window to appear always above the UCCNC screen.

The following picture shows the UCR201 plugin window:



## 8.2. Buttons and handwheel functions.

There are 4 rows of buttons on the front side of the UCR201 pendant and there are 2 safety buttons and one reset buttons on the side of the pendant.

The first row on the front has the buttons marked with F1, F2, F3, F4 and F5. These are custom buttons and their functionality can be freely attached in the plugin to call button functions of the UCCNC software.

The second row contains the following functions in the left to right order:

- Cycle start/Feedhold: Calls the Cycle start function of the UCCNC software which starts the cyclic g-code program execution. If the software is already executing the cycle then the feedhold function is called which pauses the code execution until the button is again pressed.
- Stop: Calls the stop button function of the UCCNC software which stops the cyclic g-code execution.
- SafeZ: Moves the Z axis to the safeZ height.
- Spindle on/off: Pressing the button toggling the spindle on and off.

The third row contains the following functions in the left to right order:

- Axis/FRO/SRO: Selects and toggles through the axis coordinates and the feedrate override (FRO) and spindle speed override (SRO) values.
- MPG mode: Selects the MPG control mode which allows the pendant to take the control over and jog the axes.
- MPG step/speed: Toggles between the MPG jog modes. Speed jog and step jog modes.
- M/W. Coord.: Selects to display the Machine or the Working coordinates.
- Home: Homes the selected axis.
- Zero Axis: Zeroes the selected axis.
- Probe Z: Calls the M31 macro which makes a Z axis probing routine measuring the tool.
- Goto Zero: Calls the goto zero function of the UCCNC moving all axes to zero coordinate.

There is a reset button on the side of the pendant. Pressing the reset button calls the reset function of the UCCNC software. Pressing the button locks the button in it's pressed in state and the reset condition cannot be removed in the UCCNC software until the button is unlocked with a gentle rotation.





### 8.3. Menu items and navigation.

#### 8.3.1. The bootloader

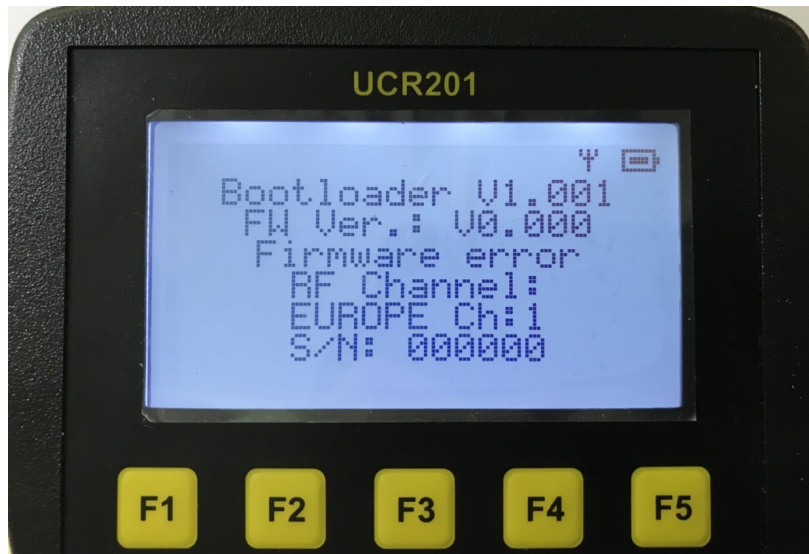
The controller automatically enters the bootloader and shows the bootloader screen if there is a firmware error which needs to be corrected.

The bootloader shows different statistics of the device.

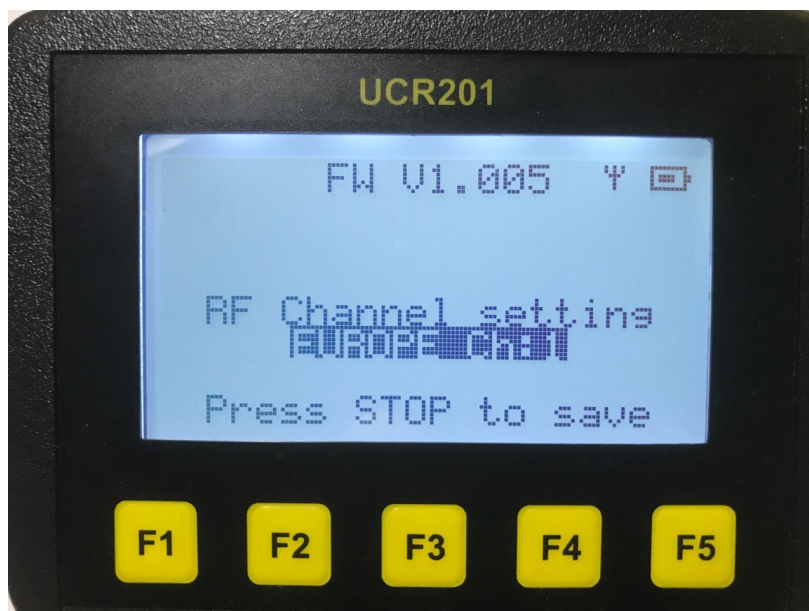
The RF channel number can be also selected in the bootloader.

The bootloader can be entered also with the reset button pressed in and pressing the F1 and F5 buttons together for longer than 5 seconds.

The following image shows the device entering the bootloader:

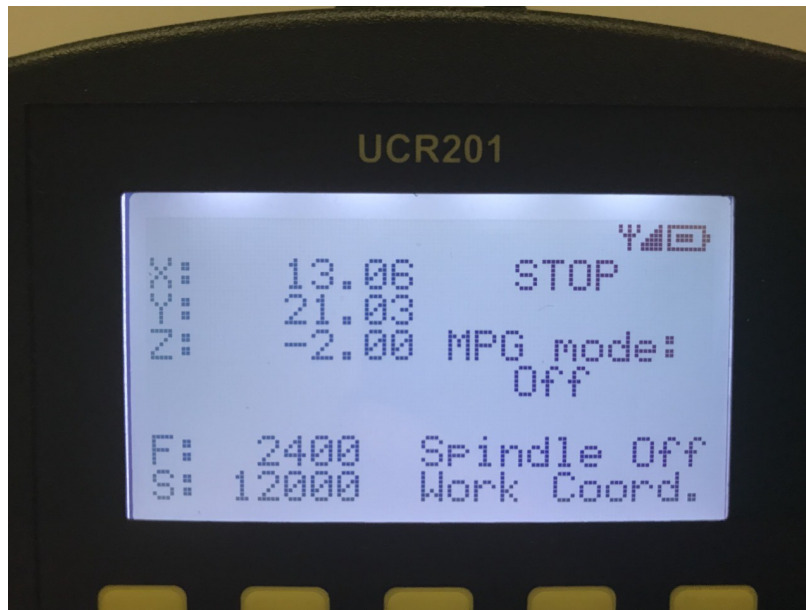


The following image shows the RF channel selection in the bootloader:



### 8.3.2. Screen description.

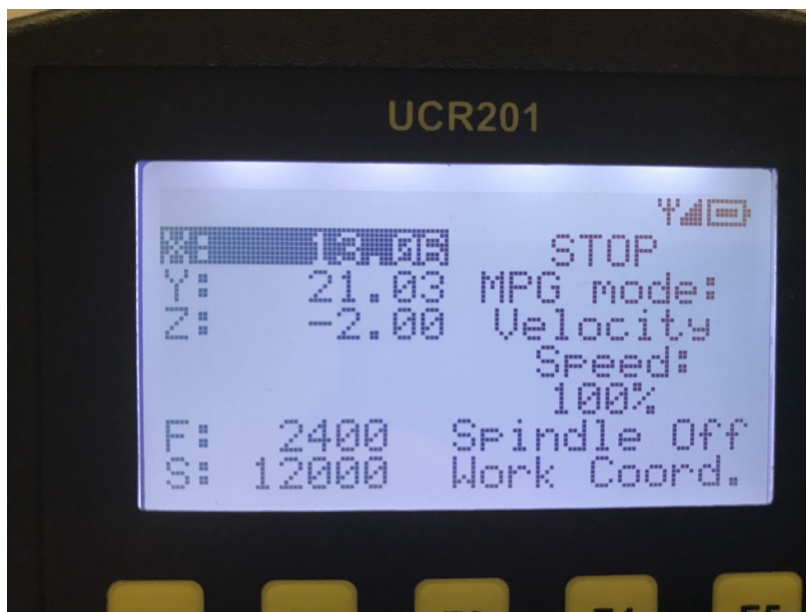
When the device and the plugin starts running then the screen shows the informations about the machine. The following is how the screen looks like:



To select an axis to jog press the Axis/FRO/SRO button and then first the X axis getting selected and pressing the same button again toggles through the other axes and finally the FRO and SRO values.

The screen can show all 6-axis coordinates the same time, but only the axes which are enabled in the UCCNC software are shown, the disabled axes are not.

The following image shows the X axis selected for jogging:

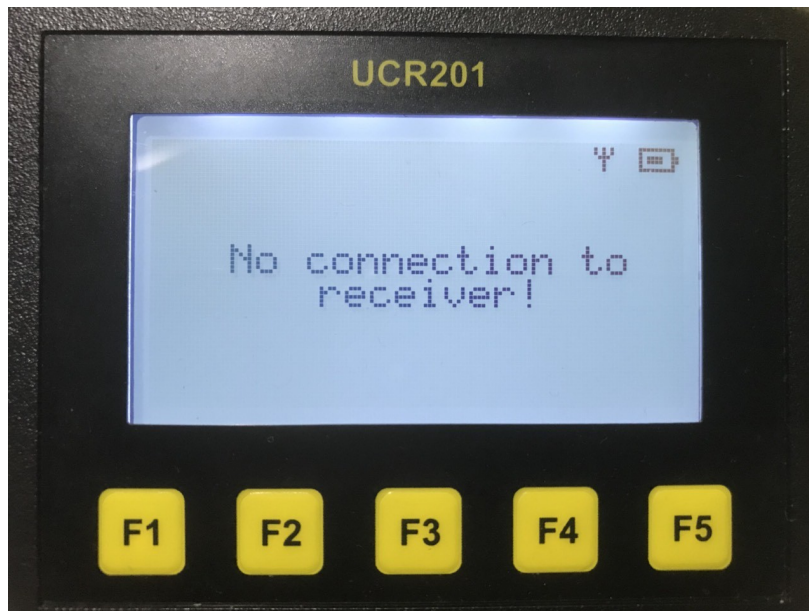


### 8.3.3. Error messages.

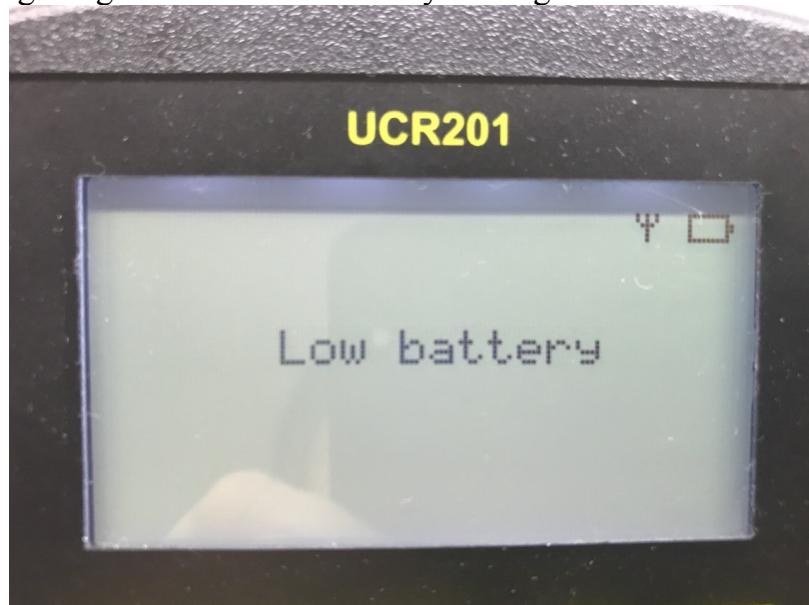
There are 2 possible error messages. One of them is shown when there is no connection to the PC side control software. This message is shown when the UCR201 software is not running or if the USB transceiver is not operating or when the signal strength is too low for the connection.

The other message is shown when the charge of the batteries became too low for the device to safely operate. The top right side icon also indicates the too low battery charge. When this message is shown then the batteries should be removed and replaced.

The following image shows the no connection error message:



The following image shows the low battery message:



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