

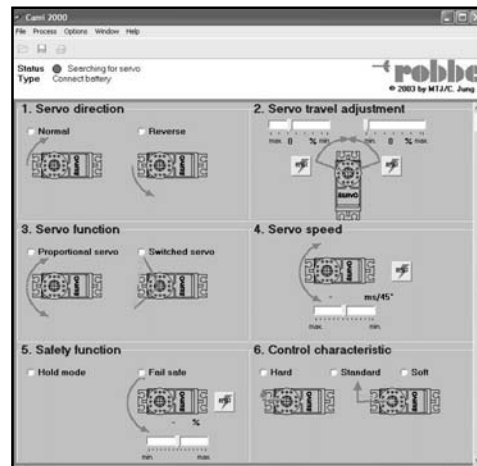
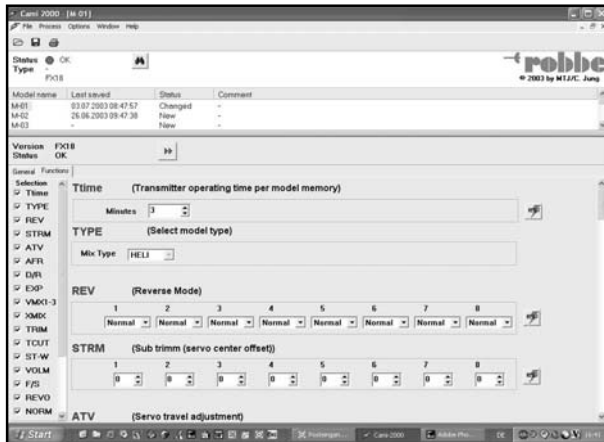
Universal PC software for managing model data generated by robbe-Futaba RC systems; also for adjusting functions and servo parameters of the robbe FS 250 T and FS 250 S digital servos.

1. The CAMI 2000 software offers the following functions:

1. Directly reads out, prints, processes and stores model data generated by FX-14 and FX-18 radio control transmitters.
2. Reads out, prints, processes and stores model data stored in CAMPac model data memory modules.

Note: Initially Version 1.0 only supports CAMPac modules containing FX-14 and FX-18 model data. Support for other transmitter types, e.g. FC-28 V3, is under development. This program will gradually be expanded to handle other models of transmitter from the robbe-Futaba range of radio control systems. You can obtain information on the latest state of development from the robbe Download Server: http://download/robbe.com/de_main.cfm

3. Reads out, prints, adjusts functions, values and servo parameters of robbe FS 250 T and FS 250 S digital servos, and stores the data in the micro-processor's flash-EPROM.

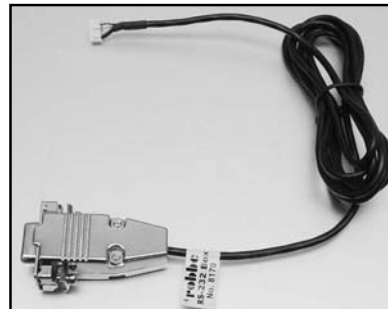


2. Hardware requirements

The CAMI 2000 software will operate on any IBM-compatible computer running one of the operating systems Win 9.x, ME, 2000 and XP.

In all cases the equipment has to be connected using the RX232-Box interface cable, No. 8170. This interface cable is available via the robbe Express Spares Department (ESD), over the Internet or from your local robbe dealer.

FX-14 and FX-18 transmitters can be connected directly to the PC using the RS232-Box.



To read out the data contained in CAMPac modules an adaptor lead is required to connect the module to the RS232-Box. This CAMPac adaptor is available under Order No. 8172.



To program robbe digital servos a Servo Adaptor is required. This item is available under No. 8173.



3. Installing the software

Once you have downloaded the latest software version from the robbe home page, start the installation by double-clicking on the cami1-xx.exe. The installation routine installs the software automatically, together with a de-installation program.

The program is stored in the folder C:\Programs\Cami-2000, and the installation process automatically generates a link to the Desktop.

Installation also creates a folder entitled C:\Programs\Cami-2000\Models where CAMI-2000 will store all the model data which is written to the hard disk. You can also create your own folders for additional storage purposes if you wish.

4. Connecting the RS232-Box

Connect the RX232-Box to any vacant serial port (COM1 ... COM4) on your PC.

5. Starting the program

Double-click on the CAMI icon to start the Cami 2000 program; alternatively you can run the program using the usual Windows menu system -> START/PROGRAMS/ROBBE-TOOLS/CAMI 2000.

Once the program is running, you will see the following information at top left in the status bar:

- program running
- RS232-Box found
- searching for FX transmitter
- no transmitter connected

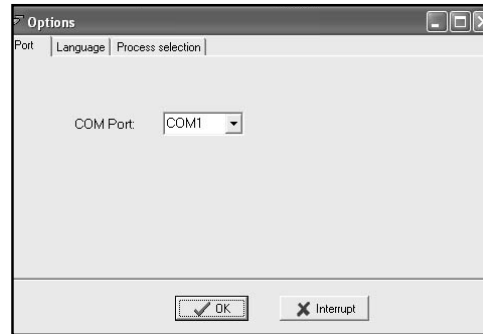
The software was installed successfully and the RS232-Box located.

The following error messages may appear:

- RS232-Box not found
- COM fault

If this should happen, check that the RX232-Box is connected correctly, and select the correct COM port in the OPTIONS menu if necessary.

If other error messages appear follow the instructions on the screen.



6. Selecting the language

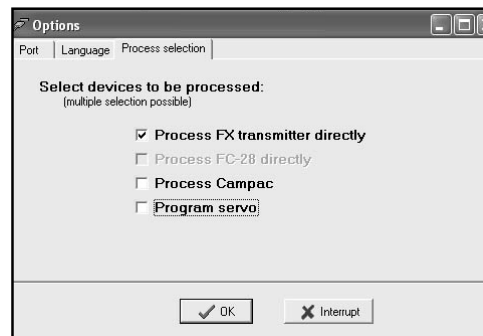
In the OPTIONS menu you can select the language used by the program. Choose your preferred language and click on OK to confirm. The CAMI 2000 program will then close and start again.

Changing the language always requires the program to restart.



7. Reading out data from an FX-14 or FX-18 transmitter

- If you are using an FX-14 / FX 18 transmitter connect the 4-pin plug attached to the RS232-Box to the socket marked DATA on the main circuit board inside the transmitter.
- Run the CAMI software.
- Select the menu -> OPTIONS/PROCESS SELECTION and tick the box to select **“Process FX transmitter directly”**.
- Switch the transmitter to PC mode: this is done by **holding the S button pressed in and switching the transmitter on.**
- The software now reads all the model memories contained in the transmitter and any CAMPac module currently installed.
- The top part of the divided screen now displays a list of all the model memories.
- Double-click on a model name to display the contents of that model memory.



In the *General section* you can add more information to the model memory.

- You can add a detailed comment defining the particular model, model memory content or programming variant.
- You can also store a photo with the model in bitmap (.bmp) format using the menu -> PROCESS/LOAD PICTURE, or by placing the cursor over the picture and right-clicking on it with the mouse.

The **Functions section** is used to display and alter the programmed model data.

- The left-hand Select bar is used for navigating quickly within the menu.
- If you click on a function (e.g. EXPO), the display and input window for this function appears in the top position. If you clear the left-hand navigation bar this function is not displayed. This is a useful means of keeping the display uncluttered, showing only the currently active functions.
- Right-clicking calls up a further pop-up menu with the functions “all on” and “all off”.

You will find a Reset button to the right of each function; clicking on this sets the programming back to the factory default value.

8 Storing altered model data in the transmitter or CAMPac module

- In the top line of the function display you will find the Data Transfer button. Clicking on this button writes the modified model memory data back into the transmitter or the CAMPac module.



When you do this the data is written back into the same model memory (number) previously used.

The beeper in the transmitter sounds to indicate the start and finish of the data transfer process, and the PC -> display on the screen of the transmitter flashes during the transfer.

With this version of the software it is not possible to store the data in a different model memory.

For more information please read Section 10 “Replacing model memories”

Note: be sure to store a back-up copy of the “old model memory content” on your hard disc together with a corresponding comment before you carry out changes to the contents of a model memory.

The data transfer process starts immediately – without requesting confirmation.

9. Storing model data on the hard disk

Model data is saved using the usual Windows methods, i.e. either via the menu system ->FILE/SAVE AS or using the pop-up menu called up by right-clicking with the mouse. In either case be sure to select the model to be stored beforehand using the mouse, by clicking once on the model name; this highlights the model, i.e. generates a coloured background for it.

Comments and photos are stored with the data on the hard disk, but not in the transmitter or the CAMPac module. The file suffix of the model memory is .fc.

When reading out models from the transmitter the software checks whether a file of the same name is already stored on the PC’s hard disk, and if it finds a duplicate it displays associated comments and pictures stored on the hard disk. For this function to work properly it is obviously important that you should remember to save models which have been modified, or assigned a comment, on the hard disk as well as in the transmitter. The program displays any comment already entered, but the comment cannot be stored in the transmitter, so this procedure is required to maintain the comment text.

To help you understand the information, the model line displays a large part of the comment and the last date of saving.

- Status line

The program checks whether the model data is identical in the transmitter and on the hard disk, and displays this information in the STATUS column.

- **New** This model has not yet been stored on the hard disk
- **Same** Both models are identical
- **Modified** There are one or more differences between the stored models on the hard disk and those in the transmitter.

Note: The status display can only be up-to-date if the models have just been read in from the transmitter. If a modification is carried out, e.g. the model is stored on the hard disk, then the program only displays the date, status and comment when you read in the model data again.

If model data is written from the hard disk into the transmitter’s model memory, the status is updated immediately. If you carry out major changes to model data we recommend that you read the memory into the PC again from time to time to ensure that the data matches accurately.

- To update or match the model data simply press the button with the binoculars symbol. The data, status and comment are then updated.



10. Replacing model memories

If you wish to replace a model memory in the transmitter or CAMPac module with another model, or a model with a changed program, the new or modified model must first be saved on the hard disk.

Replacing a model memory:

- Select the model memory to be replaced in the transmitter or CAMPac module and mark it with a single mouse-click.
- Press the right mouse button and select -> REPLACE in the pop-up menu.
- A Select window now opens, displaying the models stored on the hard disk.
- Select the appropriate model and click on OPEN.
- The Select window closes and the model file is replaced.
- At the same time the summary showing the model name, date, status and comment for this model memory changes to the new values.

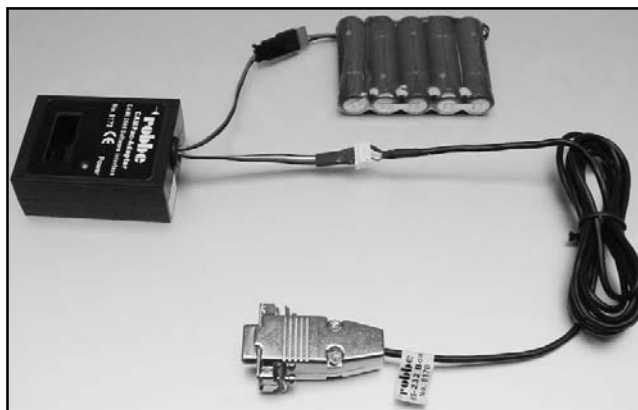
Copying a model memory:

You can rename, and therefore copy, a model memory by marking and then clicking on the appropriate model memory.

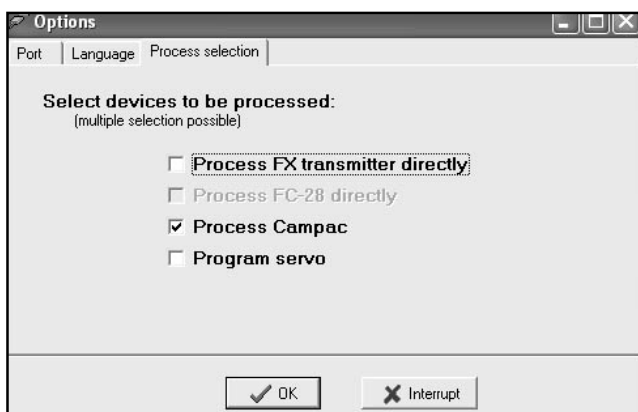
11. Reading out data from CAMPac modules

As already mentioned, a CAMPac adaptor, No. 8172, is required to read out this data.

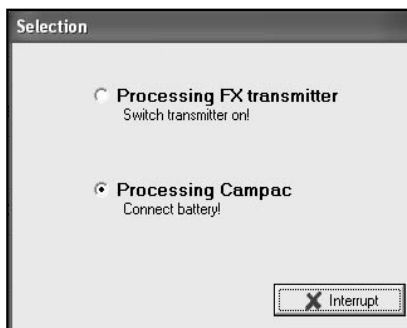
- Connect the adaptor to the RS232-Box interface as shown in the photo alongside.
- The CAMPac adaptor also has to be powered. Connect a standard **5-cell** NC or NiMH receiver battery to the battery socket; the Power LED will light up to confirm power is present.
- Connect the CAMPac module to the adaptor.
- Start the CAMI software.



- Under the menu -> OPTIONS/PROCESS SELECTION activate the selection "Process CAMPac" by ticking the appropriate box.
 - If you wish to read out CAMPac modules and an FX transmitter, both can be selected at this point.
 - Click on OK to close the Option window.
 - The program now searches for the data
- Initially it acknowledges the presence of the RS232-Box.



- A Select window now appears, enabling you to read data directly from an FX transmitter or a CAMPac module.
 - Select "**Process CAMPac**" with a double-click.
- Note:** If you only ticked "**Process CAMPac**" in the OPTIONS menu, this Select window does not appear.
- You will see the message "PLEASE SWITCH OFF TRANSMITTER OR DISCONNECT BATTERY".
 - Follow the instructions on the screen.
 - The software now reads out all the model memories of the connected CAMPac module.
 - The current status of the process is displayed in the top line of the program.



- The top part of the divided screen lists all the model memories.
- The contents of any model memory listed can be displayed by double-clicking on the model name.
- In general terms the methods of dealing with the displayed model data are as described in Sections 8 ... 10 for the FX transmitter.

Changing the CAMPac module

If you wish to read out the contents of more than one CAMPac module, withdraw the module from the adaptor and insert the next one. The program's top line now displays a button with a binoculars symbol. Click on this to read out the new data.

- If you wish to read out data contained in a multi-level CAMPac module (16 x 64k) use this procedure:
- Withdraw the CAMPac module;
- Rotate the level switch to the next level;
- Insert the CAMPac module again;
- Click on the button with the binoculars symbol;
- The new data is now read in.



12. Printing out model data

Naturally the model memory data can also be printed out. The printed image corresponds approximately to the screen display.

We recommend the following basic settings for the printer: Menu -> FILE/PAGE SETUP

- Landscape: Font height = 42, corresponds approximately to 12-point script;
- Portrait: Font height = 31, corresponds approximately to 9-point script.

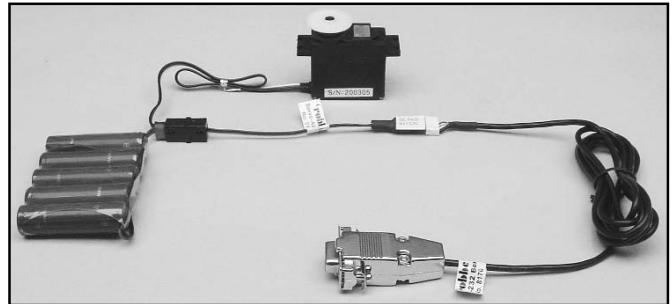
These settings produce a full-page print-out with a margin of 15 mm.

13. Reading out and adjusting functions and servo parameters of robbe digital servos

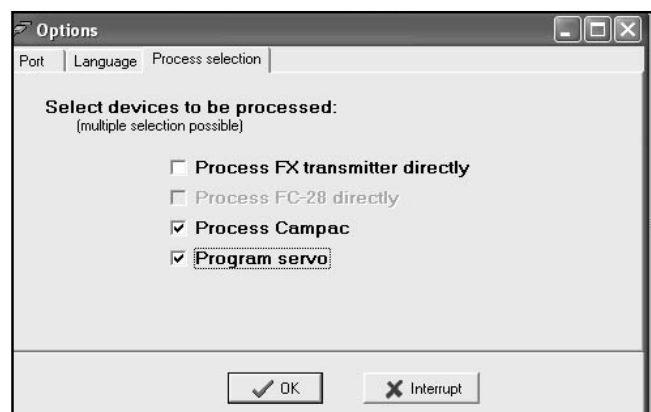
A servo adaptor No. 8173 is required to read out the data.

At present it is only possible to use the software to program robbe FS 250 T and FS 250 S servos.

- Connect the adaptor to the RS232-Box interface cable as shown in the adjacent photo.
- Connect the servo to the double socket output of the servo adaptor.
- The servo adaptor also requires a power supply. Connect a standard 4- or 5-cell NC or NiMH receiver battery to the double socket of the adaptor **after starting the software, when the program requests you to do so.**
- Run the CAMI software.



- Under the menu -> OPTIONS/PROCESS SELECTION tick the **“Program servo”** selection box.
- The top line of the program now displays the current status.
- Once the program has located the RS232-Box a message appears: “Searching for servo”, and the request to **“Connect battery”**.
- The message **“Servo found”** now appears, and the screen displays the current servo settings.
- The servo settings can now be changed by clicking with the mouse or shifting the sliders.



14. Storing functions and servo parameters

Clicking on the **“Program”** button writes the new functions and parameters to the servo’s flash memory; the top line always displays the current status. The file suffix of the stored servo files is .ser.

Note: be sure to save a back-up copy of the “old servo memory contents” on your hard disk before you carry out changes to the functions and parameters. The standard default folder is C:\Desktop\My files.

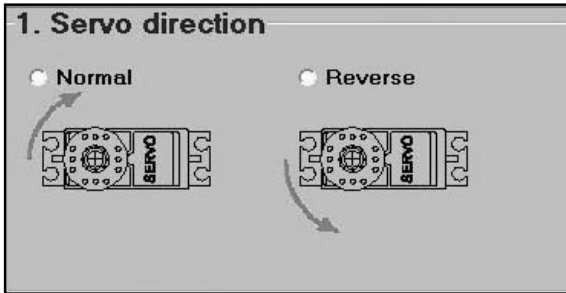
The data transfer process starts immediately – without requesting confirmation.

- All values can be reset to the default works settings by clicking on the Total Reset button. An individual reset is also possible with various functions.
- Servo values can be stored on the hard disk using the usual Windows method via the menu -> FILE/SAVE. We recommend that you create a back-up copy of all servo values on your hard disk. This enables you to create a replacement servo with exactly the same values at any time.
- A “replacement servo” is created using the menu -> FILE/OPEN, and calling up the appropriate file. You then click on the Program button, and write the values to the servo.
- To check the set functions disconnect the servo from the adaptor and connect it to the receiver or a servo tester.

Changing servos

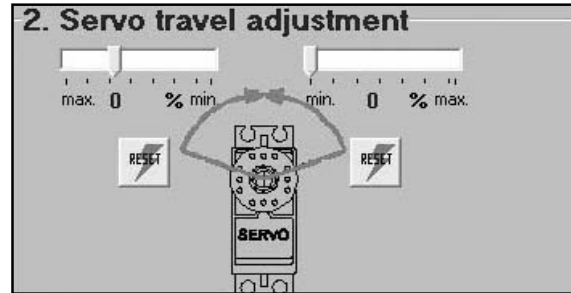
- If you wish to program another servo or multiple servos, first disconnect the servo you have already programmed;
- Click on the button with the binoculars symbol (change servo);
- The program requests you to connect the next servo;
- The new servo’s data is then read out and displayed automatically.

15. Explanation of the variable functions and parameters



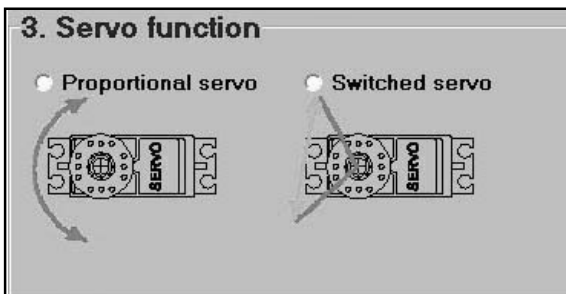
1. Servo direction

Clicking on the Normal or Reverse button reverses the direction of servo rotation.



2. Servo end-point adjustment (EPA)

The sliders can be moved to any point within the range -10 ... 150% and 10 ... 142%. The adjustment is made separately for each side of centre.

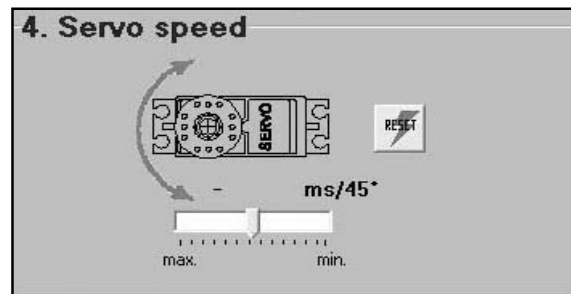


3. Selecting the servo function

You can convert a proportional servo into a switched servo simply by clicking with the mouse.

- a. Proportional servo, or
- b. Switched servo

In the “switched servo” function the two end-points are variable, i.e. you can set the points between which the servo runs “to and fro”. The servo switches over when the signal passes the neutral point in either direction.

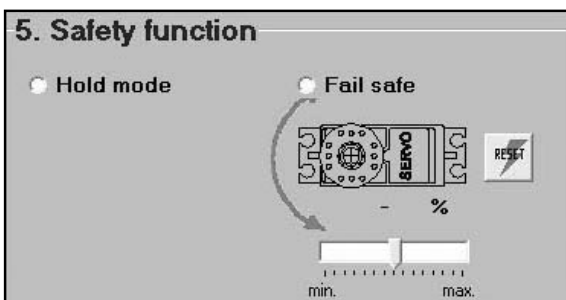


4. Servo speed

Here you can set all your servos to identical transit speeds.

The maximum value you can set is 28.24 ms/45° (0.02824 sec.). However, the servo cannot operate faster than its own maximum speed.

The minimum value is 7200 ms/45° (7.2 sec). This means a total transit time of more than 14 seconds for full servo travel.



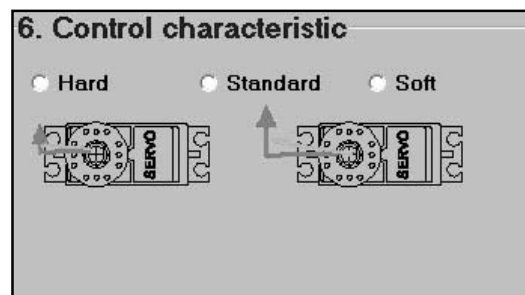
5. Selecting the safety function

- a. Hold-mode

The servo maintains its last “good” position until a clean signal is picked up again.

- b. Fail-safe mode

In this mode you can pre-set a servo position to which the servo moves if an invalid signal (i.e. a signal outside the range 600 ... 240 us) is picked up. The available range is +142 ... -150%.



6. Regulatory characteristics

- a. Hard = aggressive; even the most minute deviation is immediately corrected.
- b. Standard = typical setting for digital servos. Very small deviations are immediately corrected.
- c. Soft = tolerates minor deviations before a correction is carried out. Acts like an analogue servo. Good for auxiliary functions where extreme accuracy is not required. Avoids premature servo wear and excessive current drain.

16. Printing out servo settings

The servo settings can also be printed out via the menu -> PRINT.

Note:

Please be sure to check the control functions and model settings before you fly your model.

We cannot guarantee that the settings you make are correct or appropriate, and accept no liability for your errors. We expressly deny any consequent liability.

17. Service

The Cami 2000 program is under constant development with the aim of expanding its functionality and correcting any errors which may be found. You can download the current version from the robbe server at no charge from http://download.robbe.com/de_main.cfm.

We have taken the greatest care to produce an efficient program, but if you encounter a problem with the software due to the innumerable PC variants and operating systems currently in use, you can obtain advice from the following Service Address: cam-2000@modelltechnik-jung.de.

Before you contact the Service e-mail address please check that you are in possession of the latest version of the CAMI 2000 software, as your problem might already have been solved in a later version.

Note: before you install a new version please de-install the earlier version first. The saved model files will not be deleted when you do this.

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