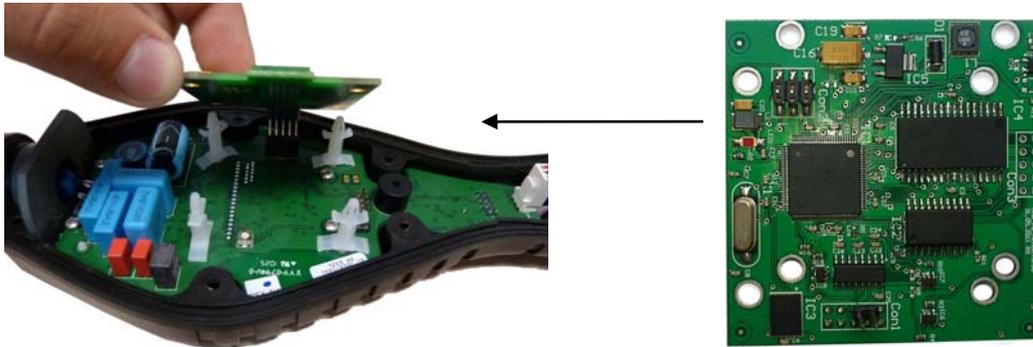


1. HHR Coprocessor piggyback gives more animals and faster searching
2. Software update, many new features and improvements



Coprocessor piggyback expands the HHR memory and can be easily retrofitted in existing HHR

1. HHR Coprocessor-piggyback:

The HHR Coprocessor piggyback has been developed to respond to increasing herd sizes in combination with requests for faster database searching in the HHR Pro V2.

Summary of characteristics:

- Coprocessor gives HHR extra memory: 8 MByte instead of existing 512 kByte, so 16x as many data.
- Coprocessor makes HHR searching faster, also when creating a new record (HHR needs to check if the transponder isn't already in the database). Of course larger memory means larger searching time, but the Coprocessor is also faster, so searching will also go faster.
- Coprocessor enables HHR to search on three different indexes (e.g. transponder number, animal number and other key). The Coprocessor has a fast 0.5Mbyte RAM memory on board to store the indexes.
- HHR with Coprocessor has RS232 standard available, a BT-version is not available.
- Coprocessor is for black HHR only (not the LT).
- Just like the RS232- and BT-piggyback the Coprocessor-piggyback is available as piggyback-option that can be pre-installed at order, or can be retrofitted later on an existing HHR 3000 PRO V2 (Modification C or higher).
- Name of HHR3000 Pro V2 with Coprocessor is HHR 3000 Pro V2X (in short HHR-X). The Coprocessor will be automatically installed when purchasing HHR and Coprocessor in the same order. Retrofitting is explained in the HHR 3000 service manual (D01B1.xx) that can be found on our website <http://biocontrol.no/index.php?root=comm&branch=hhr&leaf=manuals>
- The list price of the Coprocessor is included in Pricelist Chapter A, v010712

2. Implications for HHR Manager: HHR-X Manager replaces HHR Manager

The HHR-X transfers a lot more data via USB than the normal HHR which implies data transfer at a higher baud rate. For this reason the HHR-X Manager will replace the 'old' HHR Manager.

The HHR-X Manager automatically detects which type of HHR is connected (HHR3000 Pro V2LT, HHR 3000 PRO V2 or HHR 3000 Pro V2X) and automatically adjusts the baud rate.

This means that a PC-program only needs to include one program, the HHR-X Manager. The PC-program and the user don't need to know which type of HHR is connected to the PC; the HHR-X Manager automatically detects which reader is connected and adjusts the baud-rate.

3. Implications for HHR and HHR-X Operating Systems:

The extra features of the HHR-X imply that the Operating Systems of the HHR and the HHR-X are not the same; unfortunately this couldn't be combined in one 'overall' Operating System. All available functions (except *Index*) work on both Operating Systems. The Operating Systems are separated by the 1st digit of the OS-version:

- HHR: OS 4.xx (currently 4.30) – without coprocessor.
- HHR-X: OS 5.xx (currently 5.30) – with coprocessor.

We will continue to support and develop both 4.xx and 5.xx Operating Systems until further notice.

4. Implications for HHR Program Loader:

Because of the different baud-rates, a new boot-loader must be installed into the HHR. The procedure for this can be found in the document '*D01B2.8 HHR 3000 Pro Manual*' on our website <http://biocontrol.no/index.php?root=comm&branch=hhr&leaf=manuals>

6. Software changes in version 4.30 and 5.30

The following changes are integrated in OS 4.30 and 5.30. Details about the new functions and changes can be found in the corresponding manuals and in the readme-file on the website.

Changes	Explanation
• Coprocessor	Increases memory and searching speed
• Filter to view/print log and join log	Now you can use Filters on log and table
• New frame: FR_HHR_Line ARUUVVVMCCCXXXXXXXXXXXXX<CR><LR>	New frame to send ID-nr. to external devices (e.g. electronic weigher, PC)
• KEYBOARD area – new Enter flag 'Confirm'	You can change behavior of ENTER key
• PIN code for Bluetooth length 10 chars!	You can use a longer PIN for Bluetooth authorization
• Printing according to Sorting()	You can sort records on your printouts
• Printing log records according to Join()	Now you can use Join() with log and table to print data
• "#(PRINETERDATA:RS;)" - the highest priority	Now you do not open RS232 before printing
• New warnings: w_EQUAL, w_NOEQUAL	Warnings to Equal() function

6. New software functions in Operating System v4.30 and v5.30

- *FillExp_p(field,expression)* - function puts an expression to pointed by user column at current record where data has to be pasted is empty.
- *dec()* - returns the number of transponder in decimal format
FillExp(field,dec(field,start,length)).
- *tagtype()* - returns the tag type FDX/HDX *FillExp(field, tagtype (field))*.
- *countequ()* - returns the number of fields with a value equal to the global
FillExp(field,countequ(field,global)).
- *amountRecJoined()* - returns amount of joined record from LOG to current record in TABLE
FillExp(field, amountRecJoined()).

- `numberRecJoined()` - return a number of joined record from LOG to current record in TABLE `FillExp(field, numberRecJoined())`.
- `Equal(field1,field2)` - compares the values of fields in current record.
- `PastePart_p(field,start,lenght)` - functions simply pastes the values from memory to current record only if field in memory where data has to be pasted is empty
- `PutGlobal_p(field,global)` - These functions allows you to automatically fill some columns in current record with required values from global.
- `IncPaste(field)` - functions increments(+1) a value from memory pointed column and place it to the current record pointed column.
- `FilterJoinAddLog(field,global)`, `FilterJoinAddLog_p(field,global)` - These functions allow you to add new record to the log joined to the table (like `AddRec(log)` function. The `log_column` specifies the column connecting the table and log
- `LoopReadSeek(field)`, `LoopReadNew(field)` - execute Action area on continue reading of transponder after user enters macro where function has been used.
- `EditReadFieldExp (x,y,font,column_name)` - This function allows you to read a transponder numer executes Action area.
- `EditPartNewField (x,y, font,column_name, start, length)` - This function allows to edit part of column: S - String, A - Any type, T - Transponder read, Z - Leading Zero, at current record
- `Index(field1, field2, field3, field4)` - creates supporting table to quick searching data. Index function works only on a system with coprocessor.

7. Miscellaneous bug fixing listed in Readme file

Details on new features can be found in the updated manuals.

We trust to have informed you sufficient and look forward to being of service to you.
For all technical questions: please email support@biocontrol.pl

With best regards,
BioControl