

HumaStar 100
HumaStar 200
| LIS ASTM Interface Manual



Revision list

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1. The LIS ASTM interface – software 0.40

The type of LIS actually implemented by the HumaStar 100/200 software is based on a file exchange between the host computer and the analyser. These text files are encoded on the basis of the ASTM standard, containing the minimum needed data regarding the tests to be executed on the sample. The ASTM files are typically exchanged through the LAN.

1.1. Sequence of operation

1. Connect the analyzer and the host computer on a LAN.
2. Create on the host computer the text file containing the worklist in ASTM format (see example).
3. Copy the worklist file from the host computer to the **ASTM Input Folder** of the analyzer (see LIS folder path).
4. The analyzer recognizes the worklist **ASTM Input File** in the **Input Folder**, creates the **samples** defined in the worklist input file and opens a worklist **work-sheet** with the name of the **ASTM Input File**.
5. The **ASTM Input File** is deleted from the **Input Folder** and moved to the **ASTM Process Folder**.
6. The operator of the analyzer goes to the **SAMPLES** tab and assigns a position on the sample plate to the newly created samples.
7. The operator of the analyzer goes to the **WORKLIST** tab and selects the newly created **ASTM work-sheet**.
8. The operator checks that all the tests defined in the **ASTM work-sheet** can be executed (reagents and samples on-board) and then press the **SCHEDULE** button.
9. The analyzer runs the tests and produces the results. As soon as the results come out, they are added to the **ASTM Process File**.
10. The operator checks the results and can eventually repeat the tests until all the results are valid.
11. When all the results are completed and valid, the operator deletes the tests that must not be transferred to the host computer (leave only one test, if the test has been repeated). Invalid tests are anyway not transferred, while **all** the valid tests are anyway transferred.
12. The operator then presses on the **ASTM work-sheet** the **APPROVE** button to validate the work-sheet. The sheet can be validated even if not all the tests have been successfully executed.
13. The work-sheet button becomes **APPROVED** and the **ASTM Process File** is moved from the **ASTM Process Folder** to the **ASTM Output Folder**.
14. The software of the host computer detects the new **ASTM Output File** in the **Output Folder** and decodes the results.

1.2. Features

Every LIS worklist loaded in the Input Folder will create a separate work-sheet.

Several LIS work-sheets can be executed at the same time.

Several host computers can load at the same time LIS work-sheets onto the analyzer.

1.3. LIS ASTM worklist folders

The LIS ASTM worklist folders are placed in the following folder:

- **Windows XP:**
\\Documents and Settings\\All Users\\Application data\\HI\\Human\\LIS\\ASTM.
- **Windows Vista / Windows Seven:**
\\ProgramData\\HI\\Human\\LIS\\ASTM.

Inside the Human\\LIS\\ASTM folder, there are three sub-folders:

- The Input Folder ("\\Input Worklist").
- The Process Folder ("\\Process Worklist").
- The Output Folder ("\\Output Worklist").

1.4. Process description

The Input Files must be moved in the input folder. They are ASCII text files, formatted in the ASTM standard, with the extension .astm (any extension can fit, but it is preferable to use the .astm extension).

The software scans continuously the input folder. When it finds an input file, it creates a new sheet in the analyzer worklist tab (with the same name as the Input File), creates the new samples in the analyzer samples tab with the same ID defined in the Input File and moves the file to the Process folder.

When the operator finds a new sheet on the worklist, he must assign the positions on the samples tray, place the samples on board, check if the requested reagents are on board and then **schedule** the sheet in the worklist tab.

During the sheet execution, the Process File is continuously updated with the results of the completed tests.

When all the tests of the sheet are completed, the operator must validate all the tests, repeat wrong tests if necessary and finally press the **APPROVE** button, placed on the sheet header to allow the transfer of the Process File into the Output Folder. Once the file has been moved to the Output File, the **APPROVE** is transformed to **APPROVED**.

This procedure allows the LIS software to eventually track the execution progression in the Process File or else get directly the final results in the Output File.

It is absolutely necessary, that all the input files have different names. Otherwise they can be overwritten and some previous data can be lost.

1.5. ASTM standard input files encoding

H REPEAT_DELIMITER (‘|’) COMPONENT_DELIMITER ESCAPE_DELIMITER |||||

P | Sequence Number || ID | Department (optional) | Name (optional) | FamilyName (optional) | BirthDay (optional) | Type (optional) |||||

C | Sequence Number || Comments (all line optional) |

O | Sequence Number || Method Name | Is Urgent (true/false) ||||| Nature (Serum/Urine) |||||

L ||

Repeat delimiter ID defined on the first field of the header (second character) (default ‘|’).
Result Line is not read as input.

1.6. ASTM standard output files encoding

H REPEAT_DELIMITER (‘|’) COMPONENT_DELIMITER ESCAPE_DELIMITER ||| Software^version |||| Host || P | 1 |
DATE

P | Sequence Number || samp.Sample.ID | samp.Sample.Department | samp.Sample.Name |
samp.Sample.Family Name | Birthday | Sample.Type |||||

C | Sequence Number || Sample.Comment |

O | Sequence Number || Method Name | Priority (true/false) ||||| Nature (Serum/Urine) |||||

R | Sequence Number | Method Name ||||| Test Result |||| Test Completion Date |

L || N

1.7. Examples

1.7.1. Example of ASTM worklist input file

```
H|\^&|||HSX00^V1.0||||Host||P|1|20110117
P|1||2-FIDO||FIDO|SANFRATELLO DOMENICO|20050000|CANE|||||||||||||||||
C|1||
O|1||CALA|False|||||||Serum|||||||||||||
O|2||GPT|False|||||||Serum|||||||||||||
O|3||UREA|False|||||||Serum|||||||||||||
O|4||BD-2|False|||||||Serum|||||||||||||
O|5||BT-2|False|||||||Serum|||||||||||||
O|6||CRE|False|||||||Serum|||||||||||||
P|2||3-DIANA||DIANA|DILIBERTO GIORGIO|20060000|CANE|||||||||||||||||
C|2||
O|1||CALA|False|||||||Serum|||||||||||||
O|2||GPT|False|||||||Serum|||||||||||||
O|3||UREA|False|||||||Serum|||||||||||||
O|4||BD-2|False|||||||Serum|||||||||||||
O|5||BT-2|False|||||||Serum|||||||||||||
O|6||CRE|False|||||||Serum|||||||||||||
P|3||4-KIKI||KIKI|DILIBERTO GIORGIO|20060000|CANE|||||||||||||||||
C|3||
O|1||CALA|False|||||||Serum|||||||||||||
O|2||GPT|False|||||||Serum|||||||||||||
O|3||UREA|False|||||||Serum|||||||||||||
O|4||BD-2|False|||||||Serum|||||||||||||
O|5||BT-2|False|||||||Serum|||||||||||||
O|6||CRE|False|||||||Serum|||||||||||||
L||N
```

1.7.2. Example of ASTM results output file

```
H|\^&|||HSX00^V1.0||||Host||P|1|20081029
P|1||0001||||20080000|Undefined|||||||||||||||||
C|1||
O|1||ALP|False|||||||Serum|||||||||||||
R|1|ALP|||||1234||||20081029|
L||N
```