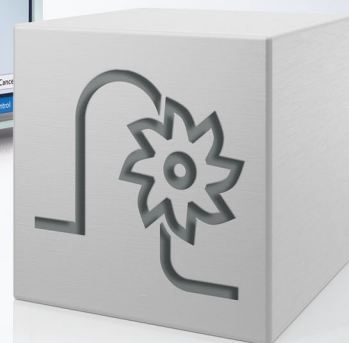
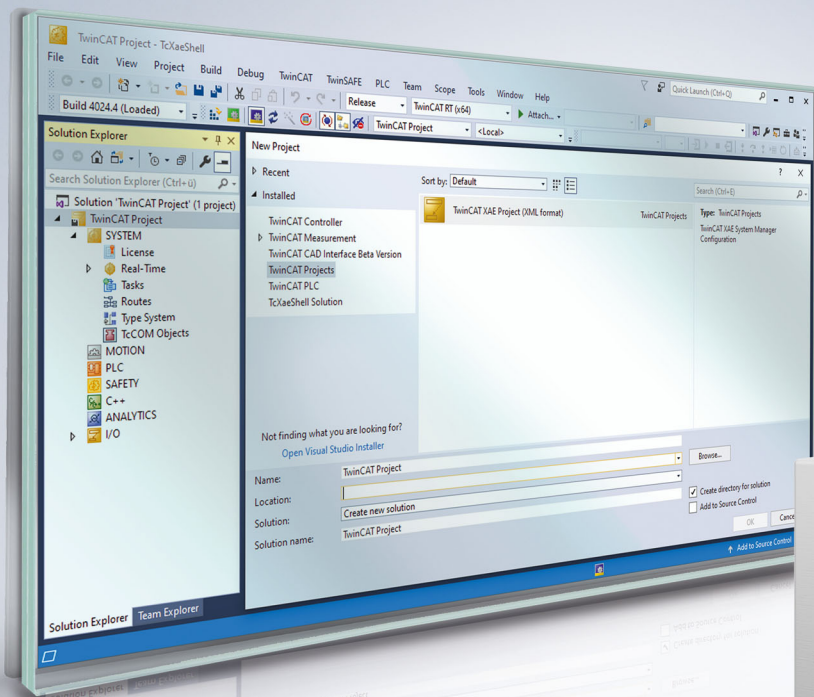


Functional description | EN

## TF5200 | TwinCAT 3 CNC

Diagnosis upload





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# 1 Overview

## Task

The Diagnosis upload function is used to save the current system status of the CNC to a file. It can be executed at any time while the CNC is running.

The diagnosis data can then be used for a CNC analysis.

## Possible applications

The upload of diagnosis data can be initiated by the PLC, an NC command or by CNC objects.

CNC diagnosis data is used for:

- error analysis
- remote diagnosis / remote support
- report on system state

## Parameterisation

The upload can be parameterised by:

- [NC command \[▶ 17\]](#)
- [start-up parameters \[▶ 21\]](#)
- or [CNC objects \[▶ 23\]](#)

## Programming

The upload of diagnosis data is requested by the NC command [#DIAGNOSIS \[▶ 17\]](#) and individual parameters can be set.

### ***Mandatory note on references to other documents***

For the sake of clarity, links to other documents and parameters are abbreviated, e.g. [PROG] for the Programming Manual or P-AXIS-00001 for an axis parameter.

For technical reasons, these links only function in the Online Help (HTML5, CHM) but not in pdf files since pdfs do not support cross-linking.

## 2 Description

### 2.1 General

Diagnosis data is an important tool to analyse the state of the CNC. This data, especially error messages or an undesired malfunction, can be used to analyse the current state of the CNC.

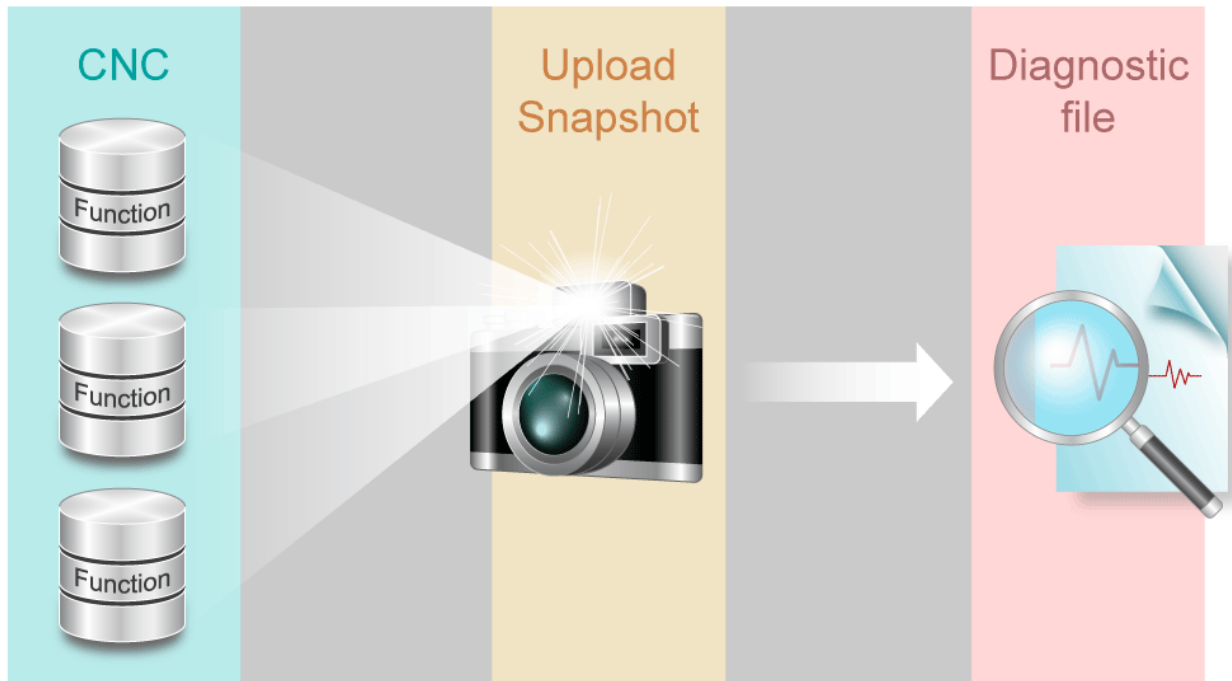


Fig. 1: Overview of Diagnosis upload function

From the viewpoint of the CNC, the term upload is the supply of all collected diagnosis data depending on the parameterisation.

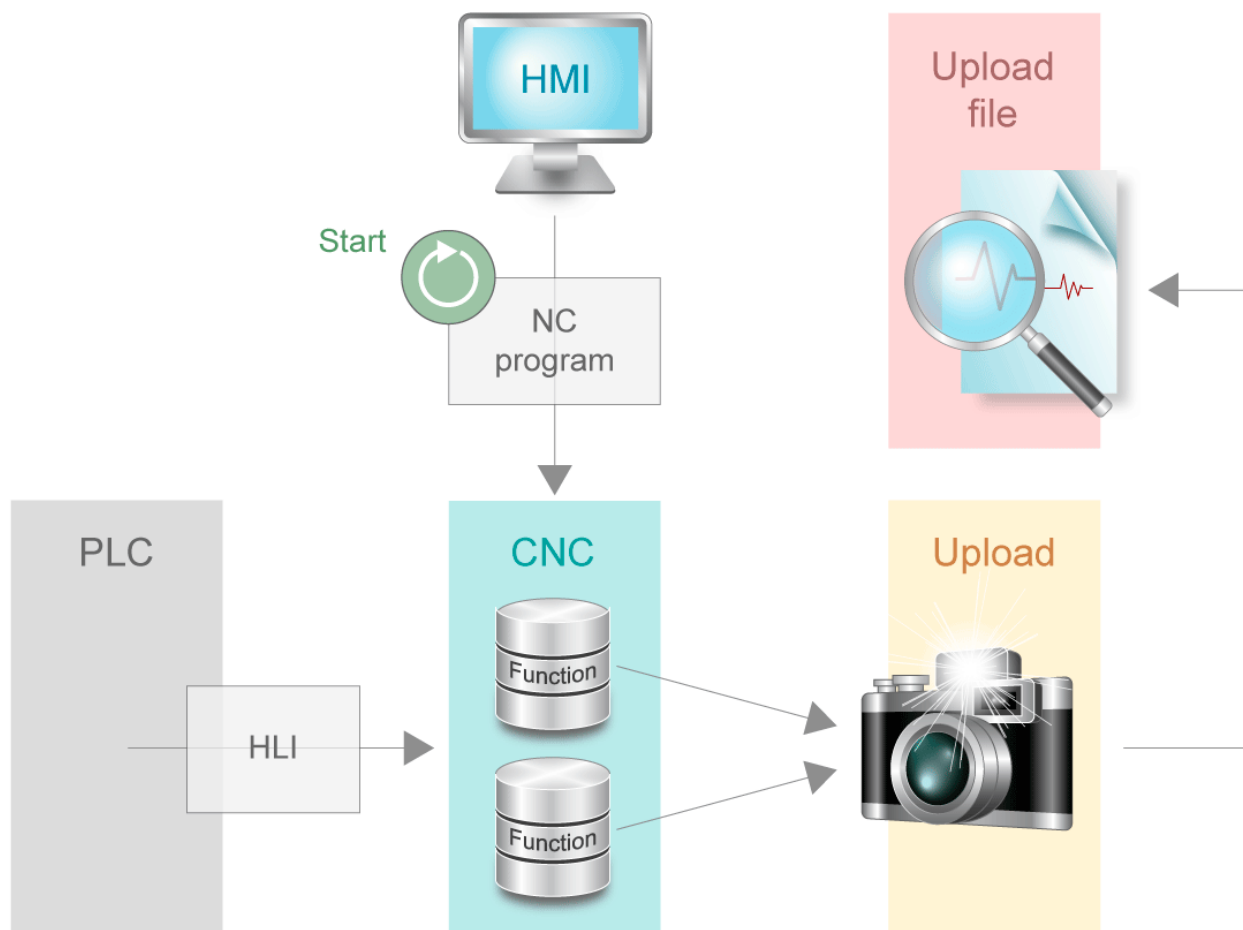


Fig. 2: Upload of diagnosis data



The following interfaces have an impact on the CNC:

- CNC parameters
- ISO program
- HMI
- PLC

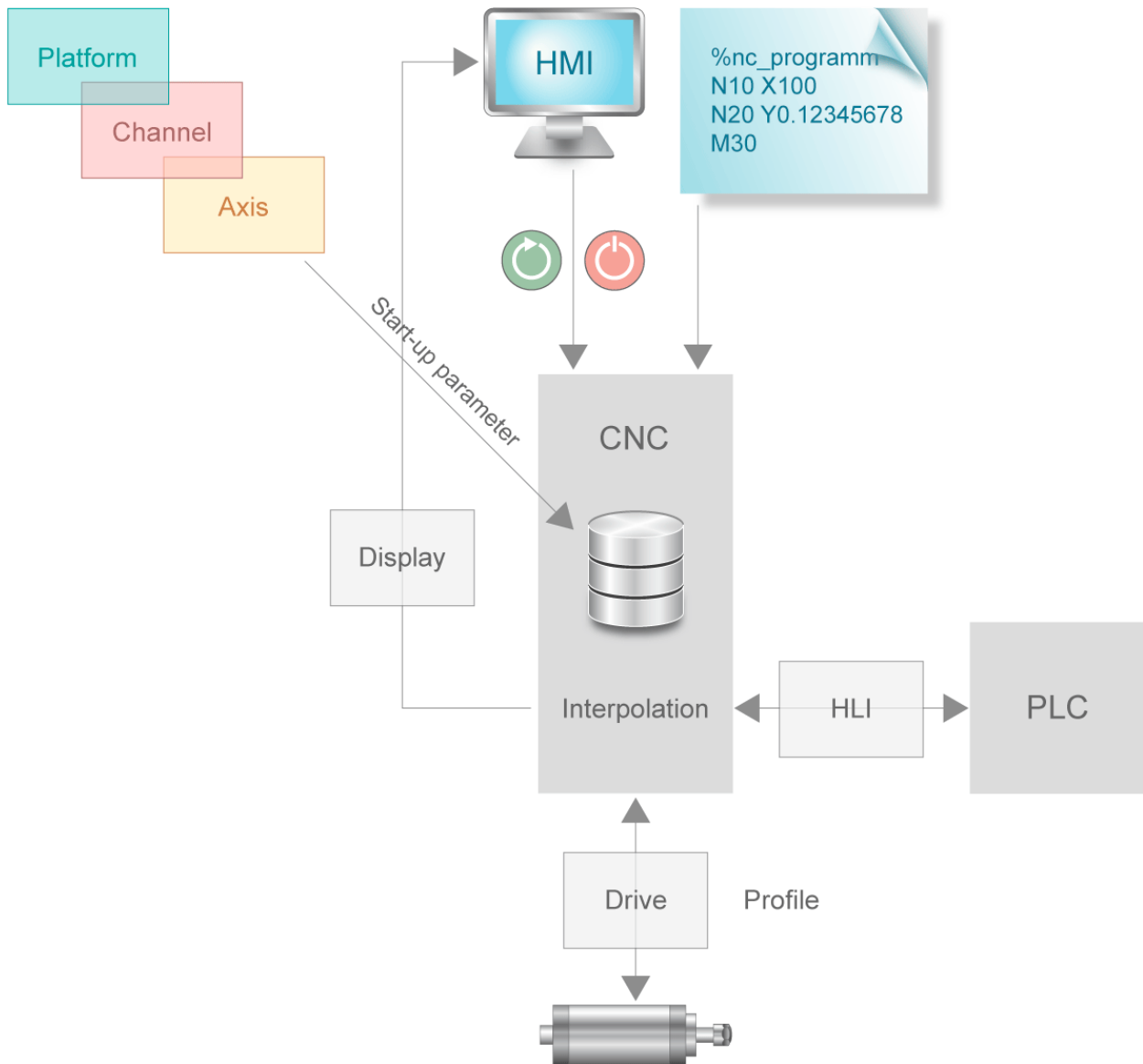


Fig. 3: CNC interfaces

When diagnosis data is uploaded, data relating to individual CNC functions is internally collected and logged to a file. The data can then be analysed after the write process is completed.

## 2.2 Commanding the upload

The Diagnosis upload function can be commanded by the following interfaces

1. PLC via [Control unit](#) [▶ 25]
2. HMI via [Object access](#) [▶ 23]
3. [NC command](#) [▶ 17] in the NC program
  - a: Before processing, i.e. while the NC program is decoded
  - b: Simultaneously with processing (during interpolation)

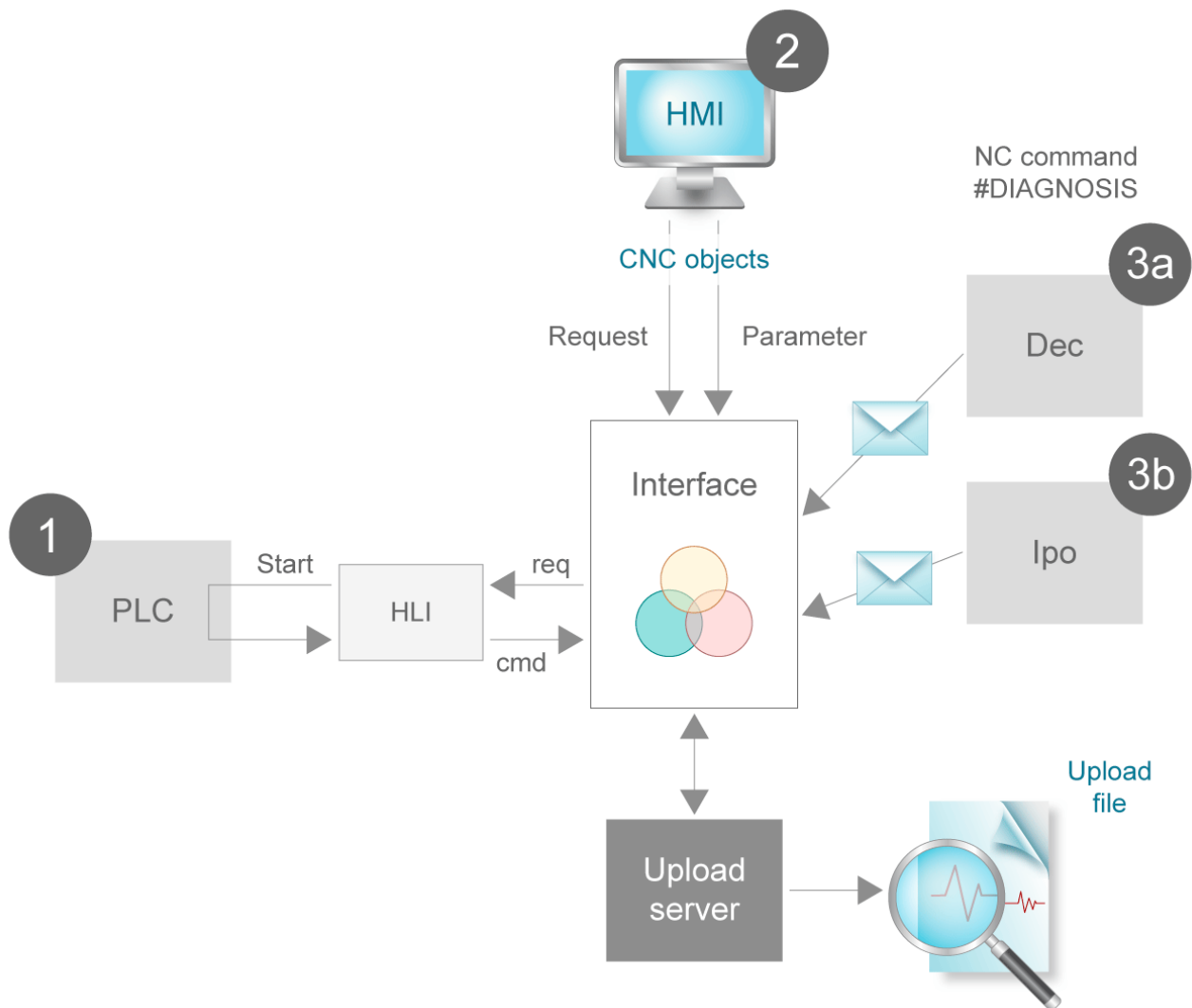


Fig. 4: Interfaces for commanding the upload

The upload process can be commanded in parallel via an interface. The individual commands are not sorted in a queue and processed one after the other. In other words, when a parallel task (multi-channel functionality, CNC objects, PLC) requests an upload, only the last upload request is considered. If necessary, each sequential upload must be synchronised at the application level with tasks running in parallel.

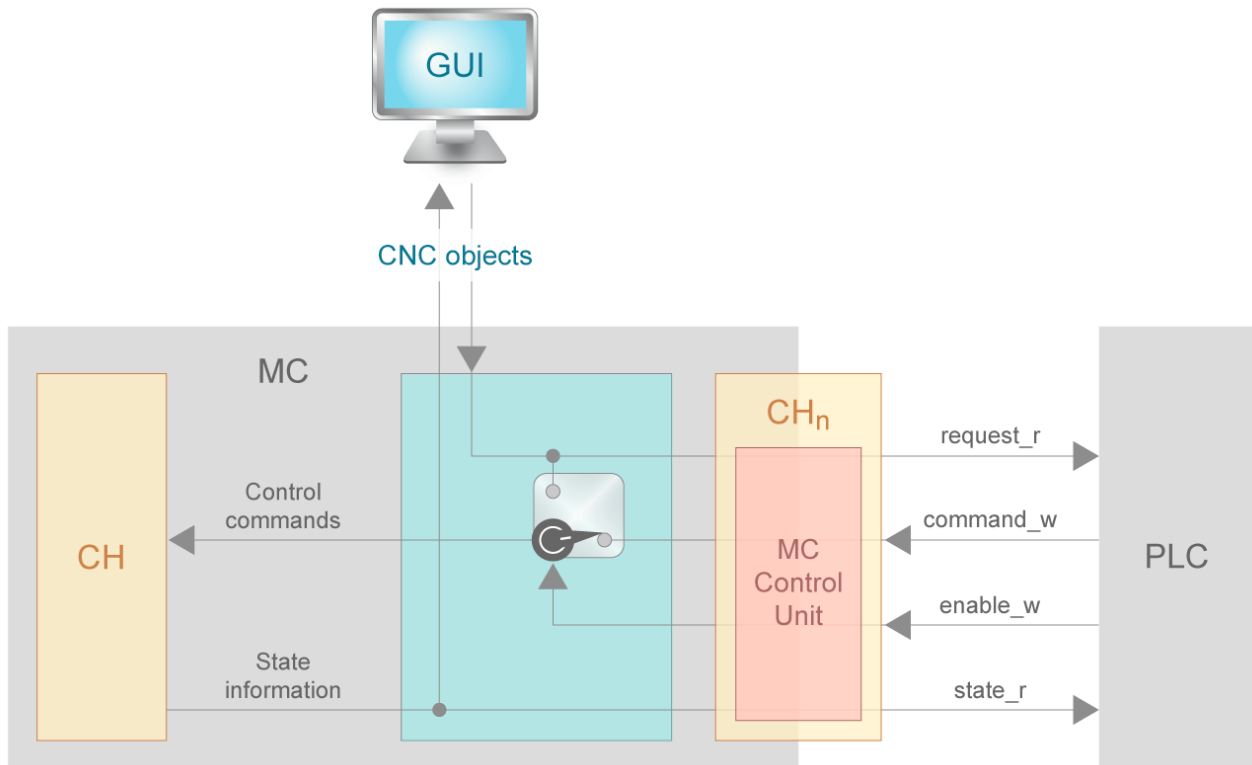
A distinction is made between parameterising the upload (filename, volume, etc.) and the upload start (command). The parameters previously set are adopted at every upload start.

## 2.2.1 Commanding via the PLC

The PLC can control the upload start or trigger it itself via the control unit (CU) [▶ 25] on the PLC interface (HLI). To do this, the PLC must enable the control unit using the `enable_w` signal.

**● HLI syntax for CNC Builds as of V2.11.20xx**

**i** The explanations and graphics below are compiled for CNC Builds as of V2.11.28xx. The behaviour in CNC Builds up to V2.11.20xx is analogous except for the related HLI syntax.



**Starting point – control unit enabled**

Every request is forwarded to the HLI. The data item `request_r` is set to TRUE on the CU. It is then possible to determine in the PLC whether the upload process is started. A start requires setting `command_w` to TRUE. As soon as `state_r` reverts to FALSE, the PLC must set `command_w` to FALSE. This completes writing of the diagnosis data.

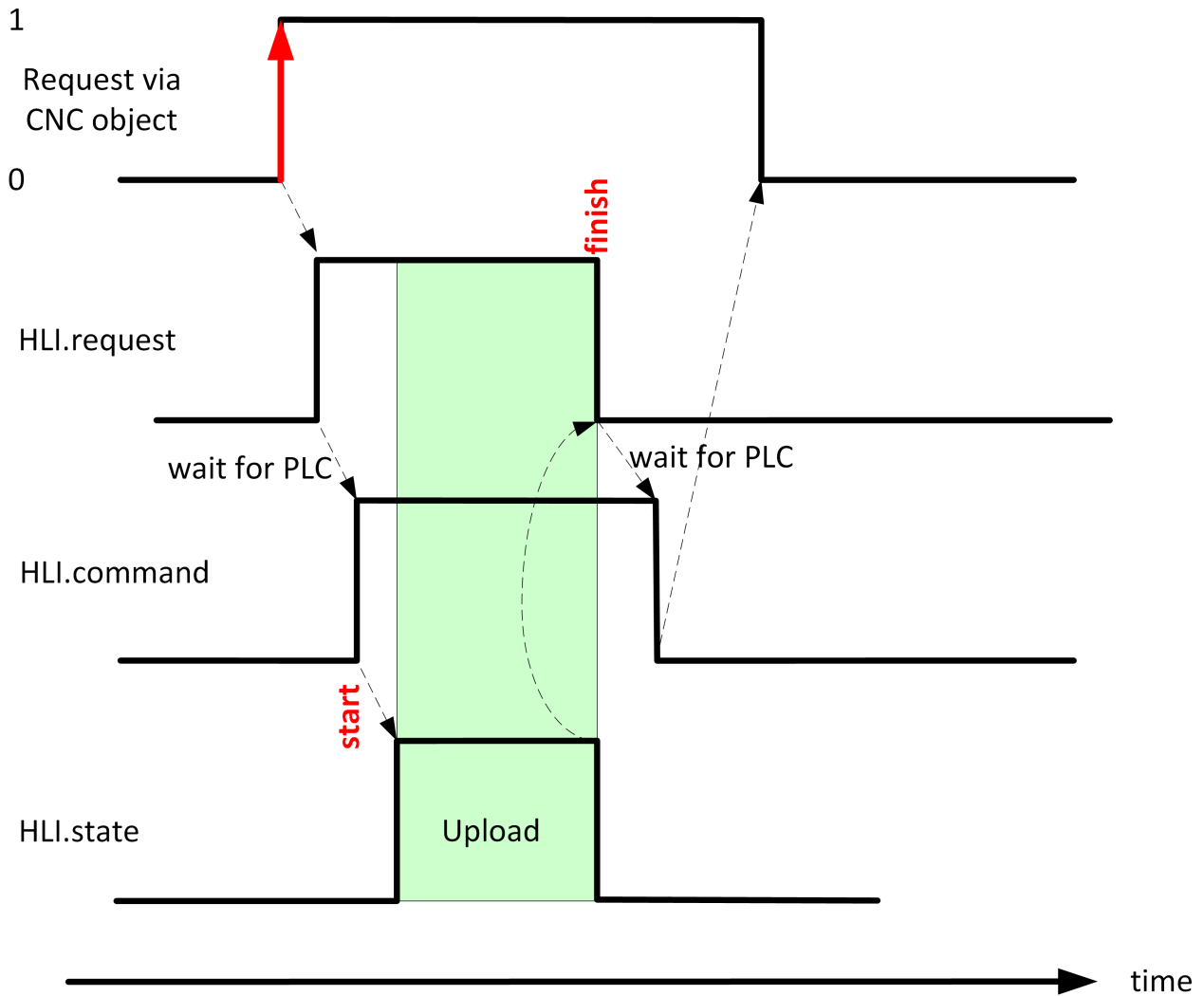


Fig. 5: Upload signal profile with control unit enabled

#### Starting point – control unit disabled

Every request commands the upload process directly, provided no other upload is active. The request command comes either via the NC command or via the CNC object.

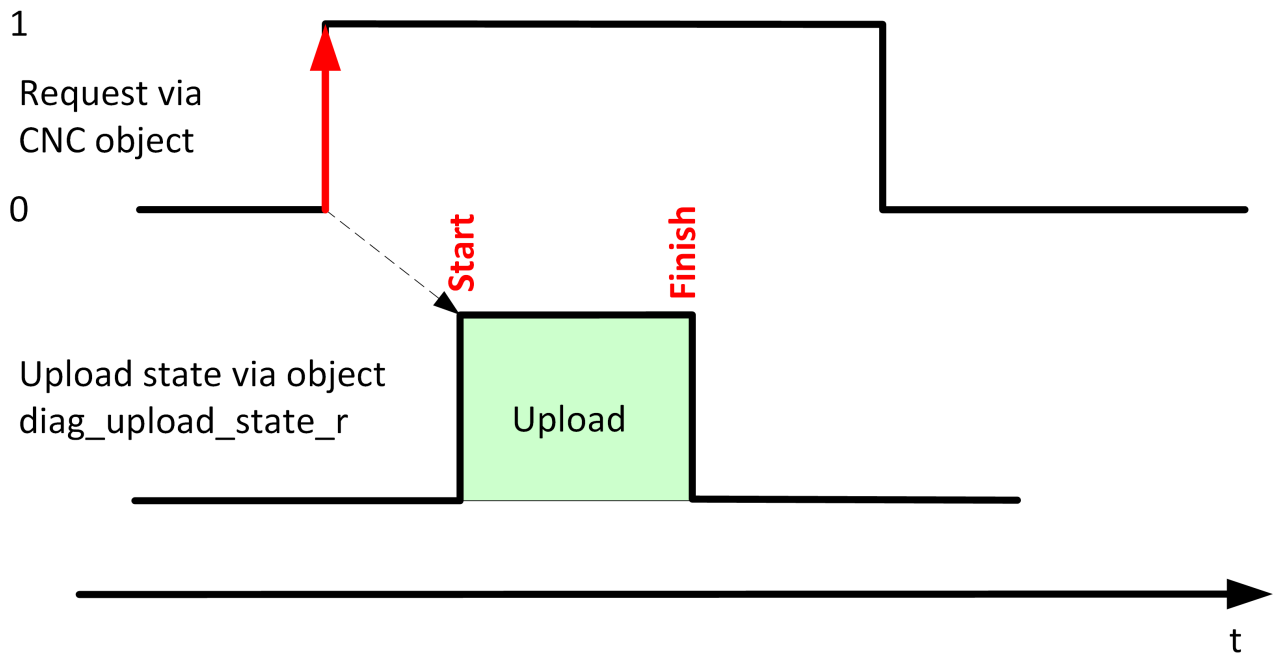


Fig. 6: Upload signal profile with control unit disabled

## 2.3 Parameterisation of an upload

The Diagnosis upload function can be parameterised by the following interfaces:

- [NC command](#) [► 17]
- [start-up parameters](#) [► 21]
- [CNC objects](#) [► 23]

The following options are available for parameterisation:

- one-off automatic upload after controller start-up
- filename and file path
- number of files to be saved
- upload synchronicity
- formatting
- scaling the upload

### One-off automatic upload after controller start-up

The parameter [P-STUP-00113](#) [► 21] can be used to specify the once-off filename for the diagnosis upload after controller startup. If this parameter is unassigned, no upload takes place.

### Filename and file path

The user may define the name of the output file and the path where the output file is to be saved. It is also possible to program a relative path both in the name of the output file and the path. The programmed path is then relative to the current work directory.

### Number of files to be saved

By default, the written file is overwritten every time an upload is commanded. The number of diagnosis files to be saved in parallel is defined by the NC command, the startup parameter [P-STUP-00114](#) [► 21] or using the CNC object. If the number <n> is specified, the last <n> files are saved and numbered automatically.

Numbering starts with 0. The numbering syntax for the first element is *<filename>\_0.<file suffix>*. An upload counter assigns the filename unambiguously to the corresponding upload using modulo calculation.

### Synchronicity with NC program execution

The NC command `#DIAGNOSIS` defines whether execution takes place during decoding or synchronous with interpolation. In addition, a setting is provided to select whether NC program processing stops at the end of the upload (WAIT) or continues in parallel.

### Upload mode

With regression tests on a machine, the same result is usually expected for all of the tests. The diagnosis data can be used to verify the state after each test. However, a comparison of two sets of diagnosis data generally shows many differences. This can be explained by the numerous time stamps in the diagnosis data. This makes it difficult to search for relevant differences between diagnosis files and to verify the test. For this reason, use Mode to select a different formatting that is more suitable for regression tests.

By default, all messages sent to ISG\_DIAG\_BED via the `#MSG` command are read out at the start of the upload. This function can be disabled.

### Scaling the upload

The data volume can be defined by what is referred to as Topics that describe individual aspects of the CNC. By default, all data are output. Depending on a particular case, it may be preferable to query only a specific part of the diagnostic data in order to increase performance, i.e. shorten the length of the upload process. The topics (see [Topic table \[▶ 18\]](#)) can be parameterised using the [#DIAGNOSIS \[▶ 17\]](#) command, the startup parameter [P-STUP-00115 \[▶ 21\]](#) or using the [CNC objects \[▶ 23\]](#).

## 2.4 Execute upload

### Start the upload by the PLC

The PLC can start an upload with the current parameter settings via the [▶ 25] enabled control unit on the HLI.

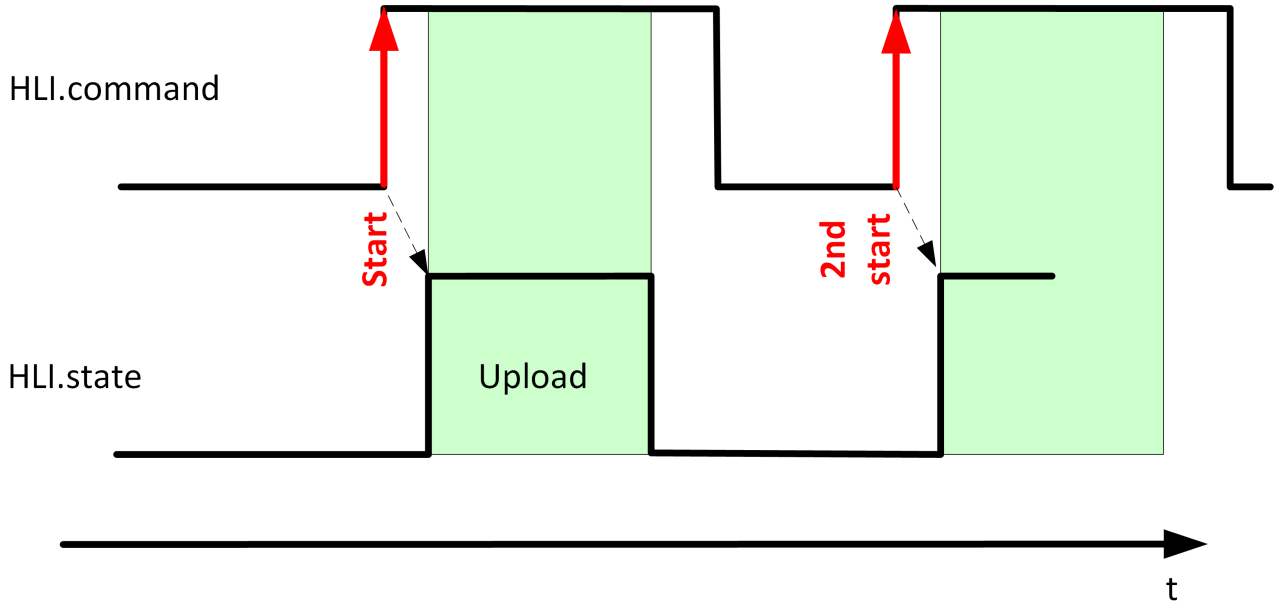


Fig. 7: Repeated start of an upload by the PLC with control unit enabled

### Abort the upload by the PLC

The PLC has the option to abort a running upload process via the enabled control unit. The current upload is aborted by setting the data item command\_w to FLASE on the control unit before the upload ends. The function will write the data of the current topic to the end. The remaining topics will not be loaded.

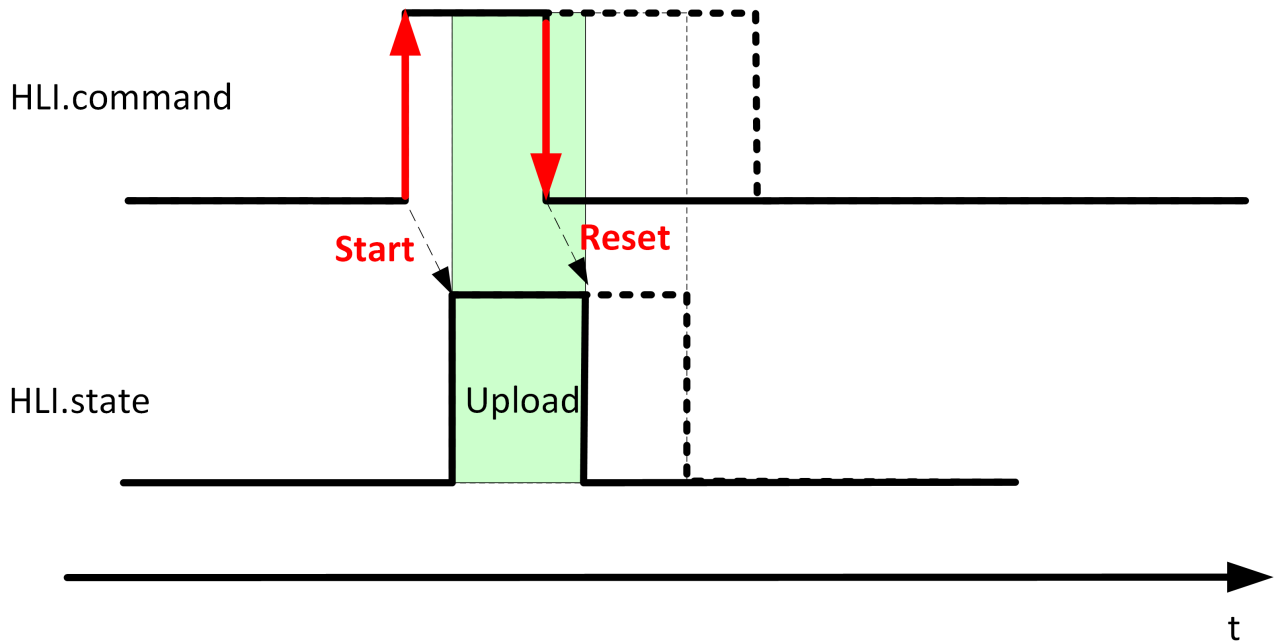


Fig. 8: Abort a current upload by the PLC with control unit enabled



### 3 Programming



#### Modality for this command refers to the complete runtime of the controller.

The individual parameters can be edited using CNC objects. The last value written is valid. This value is retained in the following uploads.

Syntax:

```
#DIAGNOSIS [SYN] [WAIT] [UPLOAD=.. FILE =.. PATH =.. TOPICS =.. HISTORY_NBR =.. MODE =.. ]
```

|                                     |   |
|-------------------------------------|---|
| SYN                                 | The NC command is executed synchronously with the processing time in the interpolator. Without SYN, the upload is already executed at the time the program is decoded.  |
| WAIT                                | The NC program is interrupted until the upload ends. Wait may take place synchronously (SYN) in the interpolator or at the time the program is decoded.   |
| UPLOAD=..                           | Command the upload (otherwise only new parameters are set): <ul style="list-style-type: none"> <li>• TO_FILE (default) Output the diagnosis data to file.</li> <li>• TO_SCREEN Output the diagnosis data to screen.</li> <li>• TO_FILE   TO_SCREEN Output the diagnosis data to screen and to file.</li> </ul>  |
| FILE=..                             | Name of the diagnosis data output file:<br><br>If FILE is unassigned, the value in <a href="#">P-STUP-00112 [► 21]</a> is used or the last value that was written by the CNC object <a href="#">diag_upload_file_w [► 23]</a> .<br><br>When the output file is specified with an absolute path, the path specified in <a href="#">P-STUP-00111 [► 21]</a> is ignored.   |
| PATH=..                             | Directory path for output file:<br><br>If PATH is unassigned, the value in <a href="#">P-STUP-00111 [► 21]</a> or the current path (default) is used.   |
| HISTORY_NBR=..                      | Number of diagnosis data output files to be saved. The numbering has a value range from 0 to HISTORY_NBR - 1.<br>The numbering syntax of the file for the first element is <i>&lt;filename&gt;_0.&lt;file suffix&gt;</i> .<br>HISTORY_NBR = 1 (default) means that every file is overwritten at the next upload.<br><br>If HISTORY_NBR is unassigned, the value in <a href="#">P-STUP-00114 [► 21]</a> or the default value 1 or the last value written by the CNC object <a href="#">diag_upload_history_nbr_w [► 23]</a> is used. |
| MODE=..<br>(as of Build V2.11.2059) | Mode in the form of a string in order to modify each individual diagnosis upload.<br>See <a href="#">Mode table [► 18]</a> .<br>If no identifier is specified for the mode, the entry in <a href="#">P-STUP-00117 [► 21]</a> is used.   |
| FORMAT=..<br>(compatibility)        | Permitted identifiers: STANDARD, REGRESSION and PROTOCOL_INFO<br>Replaced by MODE   |
| TOPICS=..                           | Identifiers in the form of a string to specify each individual diagnosis upload.<br><br>If no identifiers are specified, the identifiers in <a href="#">P-STUP-00115 [► 21]</a> or all identifiers (default) or the last value written by the CNC object <a href="#">diag_upload_topics_w [► 24]</a> is used.<br><br>For identifiers see the <a href="#">TOPICS table [► 18]</a> below.   |

**TOPICS table**

| <b>Identifier</b> | <b>Meaning</b>                        |
|-------------------|---------------------------------------|
| MIN               | Minimum upload                        |
| AX_DRVR           | axes                                  |
| IPO               | Interpolation                         |
| IPO_BLK           | Interpolator function blocks          |
| LOG               | Logging the individual BFs of the CNC |
| AX_MGR            | Axis management                       |
| DEC               | Decoder                               |
| PPREP             | Path preparation                      |
| HLI               | PLC interface                         |
| MAN               | Manual mode                           |
| SIG               | Signal/Wait handshake                 |
| COM               | Communication                         |
| VAR               | External variables                    |
| SAI               | Single-axis interpolation (spindle)   |
| SAI_BLK           | SAI function blocks                   |
| TRC               | Tool radius compensation              |
| ERR               | Error messages                        |
| ALL               | All data (default)                    |

| <b>Diagnosis upload mode</b> | <b>Meaning</b>  |
|------------------------------|---|
| STANDARD                     | Default upload with no further functions  |
| REGRESSION                   | Formatting for regression test  |
| PROTOCOL_INFO                | Additional information about the upload procedure   |
| MSG_FLUSH_OFF                | Deactivate automatic flush for messages to ISG_DIAG_BED at the start of the diagnosis upload. |

## Using the #DIAGNOSIS command

```
N400 #DIAGNOSIS SYN WAIT [HISTORY_NBR=4]
N401 #DIAGNOSIS WAIT [FILE=diag_data_syn_wait.txt]
N402 #DIAGNOSIS SYN WAIT [TOPICS="IPO MAN DEC"]
N403 #DIAGNOSIS SYN WAIT [UPLOAD]
N404 #DIAGNOSIS SYN [UPLOAD PATH =D:\]
N405 #DIAGNOSIS SYN WAIT [UPLOAD=TO_FILE|TO_SCREEN
TOPICS=DEC+IPO FILE=diag_data_syn.txt]
N406 #DIAGNOSIS [MODE = REGRESSION HISTORY_NBR = 5]
N407 #DIAGNOSIS WAIT [UPLOAD]
N408 #DIAGNOSIS [MODE = STANDARD+REGRESSION+PROTOCOL_INFO]
N409 #DIAGNOSIS WAIT [UPLOAD=TO_SCREEN MODE = STANDARD TOPICS=" IPO MAN DEC "]
N410 #DIAGNOSIS SYN WAIT [UPLOAD=TO_FILE MODE = STANDARD|PROTOCOL_INFO|MSG_FLUSH_OFF TOPICS=DEC|IPO]
```

The contents of the next 4 lines are identical

```
N411 #DIAGNOSIS WAIT [TOPICS="IPO MAN DEC"]
N412 #DIAGNOSIS WAIT [TOPICS= IPO+MAN+DEC]
N413 #DIAGNOSIS WAIT [TOPICS="IPO,MAN,DEC"]
N414 #DIAGNOSIS WAIT [TOPICS= IPO|MAN|DEC"]
```

When TOPICS, MODE and UPLOAD are programmed using | and +, there must be no blanks between the identifiers.

```
;N415 #DIAGNOSIS WAIT [TOPICS=IPO| MAN|DEC] -> Error 22150
;N416 #DIAGNOSIS WAIT [TOPICS=IPO+ MAN+DEC] -> Error 20392
```

( naming output files )

```
N430 #DIAGNOSIS WAIT [FILE=diag_out.txt HISTORY_NBR=3]
N431 #DIAGNOSIS SYN WAIT [UPLOAD]
N432 #DIAGNOSIS SYN WAIT [UPLOAD]
N433 #DIAGNOSIS SYN WAIT [UPLOAD]
```

The names of the 3 files created are:

- diag\_out\_0.txt
- diag\_out\_1.txt
- diag\_out\_2.txt

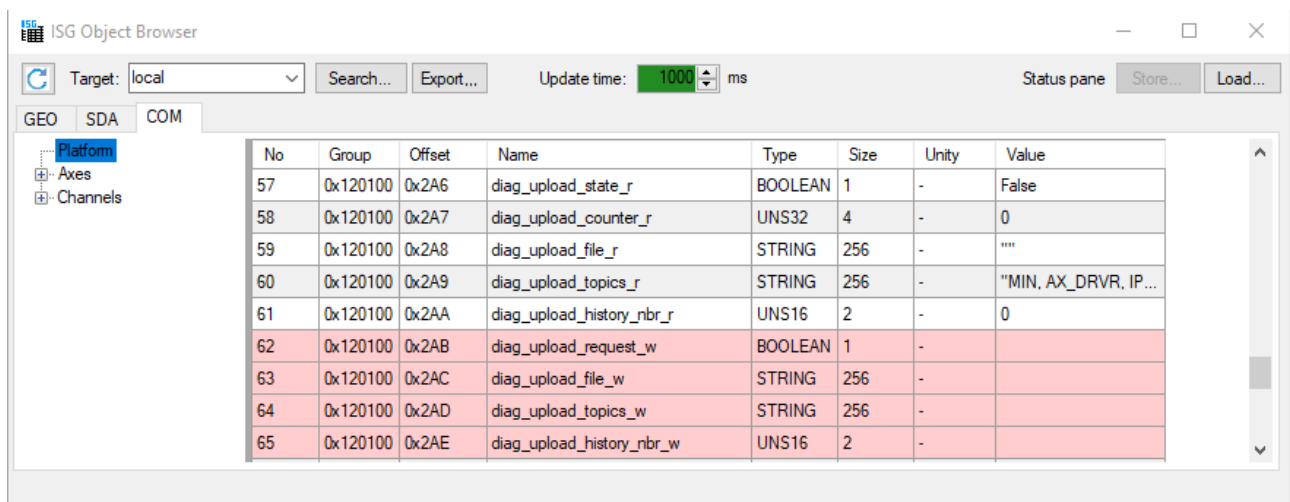
## 4 Parameter

### 4.1 Overview

#### start-up parameters

| ID           | Parameter                                   | Description  |
|--------------|---|--|
| P-STUP-00111 | configuration.diagnosis_upload.path         | File path for upload file of the diagnosis data                  |
| P-STUP-00112 | configuration.diagnosis_upload.default_file | Name of the upload file of the diagnosis data                    |
| P-STUP-00113 | configuration.diagnosis_upload.startup_file | File name for one-off diagnosis upload after controller start-up |
| P-STUP-00114 | configuration.diagnosis_upload.history_nbr  | Number of diagnosis data output files to be saved                |
| P-STUP-00115 | configuration.diagnosis_upload.topics       | Identifier to specify the diagnosis upload                       |
| P-STUP-00117 | configuration.diagnosis_upload.mode         | Diagnosis upload mode  |

#### CNC objects



| No | Group    | Offset | Name                      | Type    | Size | Unity | Value                |
|----|----------|--------|---------------------------|---------|------|-------|----------------------|
| 57 | 0x120100 | 0x2A6  | diag_upload_state_r       | BOOLEAN | 1    | -     | False                |
| 58 | 0x120100 | 0x2A7  | diag_upload_counter_r     | UNS32   | 4    | -     | 0                    |
| 59 | 0x120100 | 0x2A8  | diag_upload_file_r        | STRING  | 256  | -     | ""                   |
| 60 | 0x120100 | 0x2A9  | diag_upload_topics_r      | STRING  | 256  | -     | "MIN, AX_DRVR, IP... |
| 61 | 0x120100 | 0x2AA  | diag_upload_history_nbr_r | UNS16   | 2    | -     | 0                    |
| 62 | 0x120100 | 0x2AB  | diag_upload_request_w     | BOOLEAN | 1    | -     |                      |
| 63 | 0x120100 | 0x2AC  | diag_upload_file_w        | STRING  | 256  | -     |                      |
| 64 | 0x120100 | 0x2AD  | diag_upload_topics_w      | STRING  | 256  | -     |                      |
| 65 | 0x120100 | 0x2AE  | diag_upload_history_nbr_w | UNS16   | 2    | -     |                      |

Fig. 9: CNC objects in the Object Browser

## 4.2 Start-up parameters

|                     |  |
|---------------------|--|
| <b>P-STUP-00111</b> | <b>File path for diagnosis upload</b>  |
| Description         | This parameter defines the file path for writing the diagnosis data upload file. |
| Parameter           | configuration.diagnosis_upload.path  |
| Data type           | STRING   |
| Dimension           | ---  |
| Default value       |  |
| Remarks             |  |

|                     |   |
|---------------------|---|
| <b>P-STUP-00112</b> | <b>Filename for diagnosis upload</b>  |
| Description         | This parameter specifies the filename of the diagnosis data upload file.<br>The file path is defined by <a href="#">P-STUP-00111 [▶ 21]</a> . |
| Parameter           | configuration.diagnosis_upload.default_file   |
| Data type           | STRING  |
| Dimension           | ---   |
| Default value       | diag_data.txt   |
| Remarks             |   |

|                     |   |
|---------------------|---|
| <b>P-STUP-00113</b> | <b>Name of the upload file of the diagnosis data at start-up</b>  |
| Description         | This parameter specifies the name of the diagnosis data upload file at start-up.<br>The file path is defined by <a href="#">P-STUP-00111 [▶ 21]</a> . |
| Parameter           | configuration.diagnosis_upload.startup_file   |
| Data type           | STRING  |
| Dimension           | ---   |
| Default value       |   |
| Remarks             | <b>Note:</b><br>If P-STUP-00113 is unassigned, no diagnosis upload can be commanded at start-up.  |

|                     |  |
|---------------------|--|
| <b>P-STUP-00114</b> | <b>Number of diagnosis data output files to be saved</b>   |
| Description         | This parameter defines the number of diagnosis data output files to be saved.<br>The file path is defined by <a href="#">P-STUP-00111 [▶ 21]</a> . |
| Parameter           | configuration.diagnosis_upload.history_nbr   |
| Data type           | UNS16  |
| Dimension           | ----   |
| Default value       | 1  |
| Remarks             |  |

|                     |   |
|---------------------|---|
| <b>P-STUP-00115</b> | <b>Identifier to specify the diagnosis upload</b>   |
| Description         | This parameter defines the identifiers to specify the diagnosis upload.<br>For an overview of possible identifiers, see <a href="#">TOPICS table [▶ 18]</a> . |
| Parameter           | configuration.diagnosis_upload.topics   |
| Data type           | STRING  |
| Dimension           | ----  |
| Default value       | MAX   |
| Remarks             |   |

|                     |   |
|---------------------|---|
| <b>P-STUP-00117</b> | <b>Diagnosis upload mode</b>                            |
| Description         | This parameter defines the mode for a diagnosis upload. |

|               |   |
|---------------|---|
|               | For an overview of the possible settings, see the Mode Table                              |
| Parameter     | configuration.diagnosis_upload.mode   |
| Data type     | STRING  |
| Dimension     | ---   |
| Default value | STANDARD  |
| Remarks       | Parameter available as of CNC Build V2.11.2059, V2.11.2830, V3.1.3079.43 or V3.1.3107.33. |

| Diagnosis upload mode | Meaning   |
|-----------------------|---|
| STANDARD              | Default upload with no further functions  |
| REGRESSION            | Formatting for regression test  |
| PROTOCOL_INFO         | Additional information about the upload procedure   |
| MSG_FLUSH_OFF         | Deactivate automatic flush for messages to ISG_DIAG_BED at the start of the diagnosis upload. |

### 4.3 CNC objects

|                    |  |                     |       |
|--------------------|--|---------------------|-------|
| <b>Name</b>        | diag_upload_counter_r  |                     |       |
| <b>Description</b> | <p>This object is used by the counter to read the number of times an upload was commanded. This is a continuous counter.</p> <p>The counter is reset at:</p> <ul style="list-style-type: none"> <li>• controller start-up</li> <li>• At the start of an upload when the entry HISTORY_NBR or the name of the output file was changed since the last upload.</li> </ul> <p>The counter is not reset at reset.</p> |                     |       |
| <b>Task</b>        | COM (Port 553)   |                     |       |
| <b>Index group</b> | 0x120100   | <b>Index offset</b> | 0x2A7 |
| <b>Data type</b>   | UNS32  | <b>Length/byte</b>  | 4     |
| <b>Attributes</b>  | read   | <b>Unit</b>         | -     |
| <b>Remarks</b>     |  |                     |       |

|                    |   |                     |       |
|--------------------|---|---------------------|-------|
| <b>Name</b>        | diag_upload_file_r  |                     |       |
| <b>Description</b> | This object reads the name of the diagnosis data output file. |                     |       |
| <b>Task</b>        | COM (Port 553)  |                     |       |
| <b>Index group</b> | 0x120100  | <b>Index offset</b> | 0x2A8 |
| <b>Data type</b>   | STRING  | <b>Length/byte</b>  | 256   |
| <b>Attributes</b>  | read  | <b>Unit</b>         | -     |
| <b>Remarks</b>     |   |                     |       |

|                    |  |                     |       |
|--------------------|--|---------------------|-------|
| <b>Name</b>        | diag_upload_file_w   |                     |       |
| <b>Description</b> | This object writes the name of the diagnosis data output file. |                     |       |
| <b>Task</b>        | COM (Port 553)   |                     |       |
| <b>Index group</b> | 0x120100   | <b>Index offset</b> | 0x2AC |
| <b>Data type</b>   | STRING   | <b>Length/byte</b>  | 256   |
| <b>Attributes</b>  | write  | <b>Unit</b>         | -     |
| <b>Remarks</b>     |  |                     |       |

|                    |   |                     |       |
|--------------------|---|---------------------|-------|
| <b>Name</b>        | diag_upload_history_nbr_r                                 |                     |       |
| <b>Description</b> | This object reads the number of output files to be saved. |                     |       |
| <b>Task</b>        | COM (Port 553)  |                     |       |
| <b>Index group</b> | 0x120100  | <b>Index offset</b> | 0x2AA |
| <b>Data type</b>   | UNS16   | <b>Length/byte</b>  | 2     |
| <b>Attributes</b>  | read  | <b>Unit</b>         | -     |
| <b>Remarks</b>     |   |                     |       |

|                    |   |                     |       |
|--------------------|---|---------------------|-------|
| <b>Name</b>        | diag_upload_history_nbr_w                                   |                     |       |
| <b>Description</b> | This object defines the number of output files to be saved. |                     |       |
| <b>Task</b>        | COM (Port 553)  |                     |       |
| <b>Index group</b> | 0x120100  | <b>Index offset</b> | 0x2AE |
| <b>Data type</b>   | UNS16   | <b>Length/byte</b>  | 2     |
| <b>Attributes</b>  | write   | <b>Unit</b>         | -     |
| <b>Remarks</b>     |   |                     |       |

|             |                       |  |  |
|-------------|-----------------------|--|--|
| <b>Name</b> | diag_upload_request_w |  |  |
|-------------|-----------------------|--|--|

|                    |  |                     |       |
|--------------------|--|---------------------|-------|
| <b>Description</b> | This object triggers the upload.<br>1 : Trigger activated<br>0 : Trigger not activated |                     |       |
| <b>Task</b>        | COM (Port 553)   |                     |       |
| <b>Index group</b> | 0x120100   | <b>Index offset</b> | 0x2AB |
| <b>Data type</b>   | BOOLEAN  | <b>Length/byte</b>  | 1     |
| <b>Attributes</b>  | write  | <b>Unit</b>         | -     |
| <b>Remarks</b>     |  |                     |       |

|                    |   |                     |       |
|--------------------|---|---------------------|-------|
| <b>Name</b>        | diag_upload_state_r   |                     |       |
| <b>Description</b> | This object reads the state of the upload.<br>1 : upload active<br>0: upload inactive |                     |       |
| <b>Task</b>        | COM (Port 553)  |                     |       |
| <b>Index group</b> | 0x120100  | <b>Index offset</b> | 0x2A6 |
| <b>Data type</b>   | BOOLEAN   | <b>Length/byte</b>  | 1     |
| <b>Attributes</b>  | read  | <b>Unit</b>         | -     |
| <b>Remarks</b>     |   |                     |       |

|                    |  |                     |       |
|--------------------|--|---------------------|-------|
| <b>Name</b>        | diag_upload_topics_r   |                     |       |
| <b>Description</b> | This object reads strings that specify the upload.<br>Separate the individual topics by a comma. |                     |       |
| <b>Task</b>        | COM (Port 553)   |                     |       |
| <b>Index group</b> | 0x120100   | <b>Index offset</b> | 0x2A9 |
| <b>Data type</b>   | STRING   | <b>Length/byte</b>  | 256   |
| <b>Attributes</b>  | read   | <b>Unit</b>         | -     |
| <b>Remarks</b>     |  |                     |       |

|                    |  |                     |       |
|--------------------|--|---------------------|-------|
| <b>Name</b>        | diag_upload_topics_w   |                     |       |
| <b>Description</b> | This object defines strings to specify the upload.<br>Separate the individual topics by a comma. See <a href="#">TOPICS table [► 18]</a> . |                     |       |
| <b>Task</b>        | COM (Port 553)   |                     |       |
| <b>Index group</b> | 0x120100   | <b>Index offset</b> | 0x2AD |
| <b>Data type</b>   | STRING   | <b>Length/byte</b>  | 256   |
| <b>Attributes</b>  | write  | <b>Unit</b>         | -     |
| <b>Remarks</b>     |  |                     |       |



## 4.4 PLC parameters

| Diagnosis upload                       |   |
|--|---|
| Description                            | While the CNC is running, the PLC can command an upload of diagnosis data using this control unit.<br>The control unit is enabled by enable_w = TRUE.                       |
| Data type                              | MC_CONTROL_BOOL_UNIT, see description Control unit  |
| Access                                 | PLC reads request_r + state_r and writes command_w + enable_w   |
| ST Path                                | gpPform^.diagnosis_upload   |
| Commanded, requested and return values |   |
| ST Element                             | .command_w<br>.request_r<br>.state_r  |
| Data type                              | BOOL  |
| Value range                            | [TRUE = diagnosis upload activated,<br>FALSE = diagnosis upload off]  |
| Redirection                            |   |
| ST Element                             | .enable_w   |
| Special feature                        | <b>Note:</b><br>The data item command_w must remain at TRUE until state_r reverts to FALSE. Otherwise, the data is not complete since the diagnosis data upload is aborted. |

## 4.5 PLC parameter up to CNC Build V2.20xx

| Diagnosis upload                       |   |
|--|---|
| Description                            | While the CNC is running, the PLC can command an upload of diagnosis data using this control unit.<br>The control unit is enabled by X_Enable = TRUE.                       |
| Data type                              | MCCControlBoolUnit, see description of Control Unit   |
| Data type                              | MCCControlBoolUnit  |
| Access                                 | PLC reads Request + State and writes Command + Enable   |
| ST Path                                | pMC[channel_idx]^^.addr^.MCCControlBahn_Data.MCCControlBoolUnit_DiagnosisUpload   |
| Commanded, requested and return values |   |
| ST element                             | .X_Command<br>.X_Request<br>.X_State  |
| Data type                              | BOOL  |
| Value range                            | [TRUE = diagnosis upload activated,<br>FALSE = diagnosis upload off]  |
| Redirection                            |   |
| ST element                             | .X_Enable   |
| Special feature                        | <b>Note:</b><br>The data item X_Command must remain at TRUE until X_State reverts to FALSE. Otherwise, the data is not complete since the diagnosis data upload is aborted. |

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