



ecos Workflow xCHANGE

Documentation for remote control

DuraScan 10, 20

DuraVision 20, 30, 40, 200, 300, 400

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2 General description

ecos Workflow xCHANGE has been designed for remote control of processes in the hardness tester via either the serial interface (RS-232) or the network interface. The interface is used, for example, in conjunction with third-party software or a PLC (programmable logic controller).

2.1 Establishing a connection

2.1.1 Serial interface

To establish a connection via RS-232, a so-called null modem cable with crossed data lines is required.

The interface parameters must be configured as follows:

Baud rate: 9600

Data bits: 8

Stop bits: 1

Parity: None

2.1.2 Network interface

A network-capable PC and an appropriate network cable are required. The IP address (assigned via DHCP) of the hardness tester's internal computer, or its hostname, is also required. If you have any other questions regarding the IP address of the hardness tester, consult your network administrator.

All communications with the hardness tester via the network interface pass through port 3759. Please ensure that this port is open on the network and on the host computer!

Access to the computer can be tested using the ping command from the Windows command line.

Example:

```
ping 192.168.0.12
```

To send commands to the remote interface, a TCP/IP socket is opened for the IP address of the hardness tester at port 3759 and one of the described commands is sent as text.

2.2 Message structure

The communication message consists of individual blocks separated by ASCII character "|" (pipe, hex \$7C).

Each command begins with "|" and ends with a line feed (hex \$0A).

The start character is followed by a command indicator. This consists of 5 characters: three letters for the command group and two digits for the command selector. This is followed by the communications flags, each consisting of two digits. These are transfer flags that signal the different transmission states. Then come the status flags, also consisting of two digits, which describe the status of the command. These are followed by the data-type flags, also consisting of two digits, which specify the data type of the command. Then the data appears as a string, unless otherwise specified, with different lengths. Floating point numbers with decimal places are output as text, e.g. "357.673"; please note that, depending on your Windows settings, either a comma "," or a period "." is required as the decimal separator. The last variable is followed by another "|". After that come 2 bytes for the checksum, which is calculated as follows: The byte values starting from the first "|" up to and including the last character (also "|") are added character by character. The total obtained is calculated modulo 256 and appended to the preceding string as a 2-byte hex value ("00" - "FF"). The command is concluded with a line feed character, hex \$0A.

Example:

```
|Command|TransferFlags|StatusFlags|DataTypeFlags|Data1|Data2|...|DataN|Checksum<0A>
```

```
|ABZ03|01|05|02|Hello World!|31<0A>
```

2.3 Communication sequence

If a checksum or command error occurs during communication, the command is responded to with the status flag error.

2.3.1 Synchronous commands

Synchronous commands are executed and responded to immediately by the hardness tester. After the response from the hardness tester, the command is completed and the hardness tester is ready to execute the next command.

Example:

Command to read the software version:

Command to hardness tester

|CA 01|00|02|03||12<0A>



Response from hardness tester

|CA 01|00|10|03|Ecos Workflow Version: 2.8.32|A1



Communication complete

2.3.2 Asynchronous commands

Asynchronous commands are used for processes where the response is not available immediately and another action needs to be carried out.

After receiving an asynchronous command, the hardness tester reports the start and any reports of the requested action. Once the action is complete, the host receives another confirmation regarding the end of the action.

Example:

Measure command:

Command to hardness tester

|EB 01|05|02|03||1A<0A>



Response from hardness tester, measurement started

|EB 01|05|04|03||1C<0A>



The action is carried out, the hardness tester sends reports regarding the status

...

|EB 01|05|06|03|Main load achieved.|DC<0A>

...



After the end of the action, response from hardness tester, measurement complete

|EB 01|05|10|03||19<0A>



Communication complete

2.4 Transfer flags

Two-digit combinations are used as flags to indicate the status of transfers.

Number	Flag description
00	Synchronous command
01	Reserved
02	Reserved
03	Reserved
04	Reserved
05	Asynchronous command

2.5 Status flags

Two-digit combinations are used as flags to indicate the status of commands.

Number	Flag description
00	Status unknown
01	Reserved
02	The command has been started
03	Reserved
04	The command is being executed
05	Reserved
06	Report regarding the status of the command
07	Reserved
08	The command has been stopped
09	Reserved
10	The command has been completed successfully
11	Reserved
12	The command has been completed with an error

2.6 DataTypeFlags

Two-digit combinations are used as flags to indicate the data type.

Number	Flag description
0	Null
1	Int
2	Double
3	String
4	Bool
...	Reserved
8	DateTime
9	Image
10	List<Int>
11	List<String>
...	Reserved
20	SingleSpecimen object
21	Conversion object
22	GeometryCorrection object
23	QuickSettings object
...	Reserved
30	ToolHolder object
31	HoldTime object
...	Reserved
49	Message object

The data itself is always transferred as a string; the data type is used for internal identification of the conversion after transmission.

3 Commands

This chapter provides a complete list of all commands supported by the hardness tester. The command consists of a main group, a subgroup, and a sub-subgroup, followed by the command.

If one of the subgroups is not used, this is indicated by a space.

3.1 Configuration 'AXXXX'

Group "A" describes configuration information for the hardness tester.

3.1.1 Tab page selection 'AAXXX'

Subgroup "A" describes selection functions pertaining to the tab pages of the ecos software.

3.1.1.1 Select tab page on main form 'AA 02'

Selects the transferred tab page on the main form in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AA 02
Transfer flags	00
Status flags	02
Data-type flags	01
Data	Value of page

Response:

Type	Value
Identifier	AA 02
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible pages:

Page	Value
Specimen	1
Method	2
Position	3
Result	4
History	5
Settings	6

Example:

← |AA 02|00|02|01|1|40<0A>

→ |AA 02|00|10|01||0E<0A>

3.1.1.2 Select tab page in Method 'AA 04'

Selects the transferred tab page on the Method tab of the main form in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AA 04
Transfer flags	00
Status flags	02
Data-type flags	01
Data	Value of page

Response:

Type	Value
Identifier	AA 04
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible pages:

Page	Value
Method and lens	1
Conversion	2
Limits	3
Component correction	4

Example:

← |AA 04|00|02|01|1|42<0A>

→ |AA 04|00|10|01||10<0A>

3.1.1.3 Select tab page in Position 'AA 06'

Selects the transferred tab page on the Position tab of the main form in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AA 06
Transfer flags	00
Status flags	02
Data-type flags	01
Data	Value of page

Response:

Type	Value
Identifier	AA 06
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible pages:

Page	Value
Image	1
Revolver	2
Swivel body	3
Zoom	4
Circular light	5
AF camera	6
AF indent	7
Measurement	8

Example:

← |AA 06|00|02|01|1|44<0A>

→ |AA 06|00|10|01||12<0A>

3.1.1.4 Select tab page in History 'AA 08'

Selects the transferred tab page on the History tab of the main form in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AA 08
Transfer flags	00
Status flags	02
Data-type flags	01
Data	Value of page

Response:

Type	Value
Identifier	AA 08
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible pages:

Page	Value
List	1
Statistics	2
Report	3
Export	4

Example:

← |AA 08|00|02|01|1|46<0A>

→ |AA 08|00|10|01||14<0A>

3.1.1.5 Select tab page in Settings 'AA 10'

Selects the transferred tab page on the Settings tab of the main form in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AA 10
Transfer flags	00
Status flags	02
Data-type flags	01
Data	Value of page

Response:

Type	Value
Identifier	AA 10
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible pages:

Page	Value
General settings	1
Service	2
Change user	3
Exit	4

Example:

← |AA 10|00|02|01|1|3F<0A>

→ |AA 10|00|10|01||0D<0A>

3.1.1.6 Select tab page in General Settings 'AA 12'

Selects the transferred tab page on the General Settings tab of the main form in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AA 12
Transfer flags	00
Status flags	02
Data-type flags	01
Data	Value of page

Response:

Type	Value
Identifier	AA 12
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible pages:

Page	Value
General	1
User fields	2

Example:

← |AA 12|00|02|01|1|41<0A>

→ |AA 12|00|10|01||0F<0A>

3.1.1.7 Select tab page in Settings General 'AA 14'

Selects the transferred tab page on the General tab of the main form in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AA 14
Transfer flags	00
Status flags	02
Data-type flags	01
Data	Value of page

Response:

Type	Value
Identifier	AA 14
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible pages:

Page	Value
Region	1
Times	2
Info	3

Example:

← |AA 14|00|02|01|1|43<0A>

→ |AA 14|00|10|01||11<0A>

3.1.2 General settings 'ABXXX'

Group "AB" contains functions pertaining to the general settings.

3.1.2.1 Read all units of measure 'AB 01'

Reads all supported units of measure from the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AB 01
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	AB 01
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	1
Data 2	2

Possible values:

Name	Value
Unknown	0
Millimetre	1
Inch	2

Example:

← |AB 01|00|02|10||0F<0A>

→ |AB 01|00|10|10|2|1|ED<0A>

3.1.2.2 Read unit of measure 'AB 03'

Reads out the currently configured unit of measure.

Command type: Synchronous

Command example:

Type	Value
Identifier	AB 03
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	AB 03
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible values:

Name	Value
Unknown	0
Millimetre	1
Inch	2

Example:

← |AB 03|00|02|01||11 <0A>

→ |AB 03|00|10|01|1|41 <0A>

3.1.2.3 Set unit of measure 'AB 04'

Sets the transferred unit of measure in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AB 04
Transfer flags	00
Status flags	02
Data-type flags	01
Data	1

Response:

Type	Value
Identifier	AB 04
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible values:

Name	Value
Unknown	0
Millimetre	1
Inch	2

Example:

← |AB 04|00|02|01|1|43<0A>

→ |AB 04|00|10|01||11 <0A>

3.1.2.4 Read all languages 'AB 05'

Reads all supported languages from the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AB 05
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	AB 05
Transfer flags	00
Status flags	10
Data-type flags	10
Data N	...

Possible values:

Name	Value
Unknown	0
Chinese	1
Czech	2
German	3
English	4
Spanish	5
French	6
Hungarian	7
Italian	8
Japanese	9
Polish	10
Russian	11
Finnish	12

Turkish	13
---------	----

Example:

← |AB 05|00|02|01||13<0A>

→ |AB 05|00|10|10|2|3|4|5|6|8|9|10|11|12|13|E9<0A>

3.1.2.5 Read language 'AB 07'

Reads out the language currently configured in the software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AB 07
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	AB 07
Transfer flags	00
Status flags	10
Data-type flags	01
Data	3

Possible values:

Name	Value
Unknown	0
Chinese	1
Czech	2
German	3
English	4
Spanish	5
French	6
Hungarian	7
Italian	8
Japanese	9
Polish	10
Russian	11
Finnish	12

Turkish	13
---------	----

Example:

← |AB 07|00|02|01||15<0A>

→ |AB 07|00|10|01|3|47<0A>

3.1.2.6 Set language 'AB 08'

Sets the transferred language in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	AB 08
Transfer flags	00
Status flags	02
Data-type flags	01
Data	3

Response:

Type	Value
Identifier	AB 08
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible values:

Name	Value
Unknown	0
Chinese	1
Czech	2
German	3
English	4
Spanish	5
French	6
Hungarian	7
Italian	8
Japanese	9
Polish	10
Russian	11
Finnish	12

Turkish	13
---------	----

Example:

← |AB 08|00|02|01|3|49<0A>

→ |AB 08|00|10|01||15<0A>

3.1.2.7 Read evaluation according to ASTM 'AB 09'

Reads out the status of whether evaluation according to ASTM is active or inactive. Parameter transfer takes place based on a Boolean true or false value.

Command type: Synchronous

Command example:

Type	Value
Identifier	AB 09
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	AB 09
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible values:

Name	Value
False	0
True	1

Example:

← |AB 09|00|02|01||17<0A>

→ |AB 09|00|10|01|0|46<0A>

3.1.2.8 Set evaluation according to ASTM 'AB 10'

Sets evaluation according to ASTM to either active or inactive. Parameter transfer takes place based on a Boolean true or false value.

Command type: Synchronous

Command example:

Type	Value
Identifier	AB 10
Transfer flags	00
Status flags	02
Data-type flags	04
Data	0

Response:

Type	Value
Identifier	AB 10
Transfer flags	00
Status flags	10
Data-type flags	04
Data	

Possible values:

Name	Value
False	0
True	1

Example:

← |AB 10|00|02|04|1|43<0A>

→ |AB 10|00|10|04||11<0A>

3.1.3 Holding times 'ACXXX'

Subgroup "C" contains functions pertaining to holding times.

3.1.3.1 Read all measurement types of the holding times 'AC 01'

Reads out all possible measurement types for which the holding times can be configured. The output is grouped and the holding times are configured per group. The holding times are output in seconds.

Command type: Synchronous

Command example:

Type	Value
Identifier	AC 01
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	AC 01
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	1
Data N	...

Possible values:

Name	Value
Vickers, Knoop	1
Rockwell, HVT, HBT	2
HBW	3
H	4

Example:

← |AC 01|00|02|10||10<0A>

→ |AC 01|00|10|10|1|2|3|4|4D<0A>

3.1.3.2 Read measurement type 'AC 03'

Reads out the currently configured measurement type from the software, without the holding time. Since the measurement types are grouped, there may be more than one.

Command type: Synchronous

Command example:

Type	Value
Identifier	AC 03
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	AC 03
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible values:

Name	Value
Vickers, Knoop	1
Rockwell, HVT, HBT	2
HBW	3
H	4

Example:

← |AC 03|00|02|01||12<0A>

→ |AC 03|00|10|01|1|42<0A>

3.1.3.3 Set measurement type 'AC 04''

Sets the transferred measurement type in the software, without holding times.

Command type: Synchronous

Command example:

Type	Value
Identifier	AC 04
Transfer flags	00
Status flags	02
Data-type flags	01
Data	1

Response:

Type	Value
Identifier	AC 04
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible values:

Name	Value
Vickers, Knoop	1
Rockwell, HVT, HBT	2
HBW	3
H	4

Example:

← |AC 04|00|02|01|1|44<0A>

→ |AC 04|00|10|01||12<0A>

3.1.3.4 Read holding times 'AC 05'

Reads out the holding times in seconds for the transferred measurement type / group.

Command type: Synchronous**Command example:**

Type	Value
Identifier	AC 05
Transfer flags	00
Status flags	02
Data-type flags	31
Data 1 (measurement type)	2
Data 2	
Data 3	
Data 4	

Response:

Type	Value
Identifier	AC 05
Transfer flags	00
Status flags	10
Data-type flags	31
Data 1 (measurement type)	2
Data 2	3 (in seconds)
Data 3 (optional)	1 (in seconds)
Data 4 (optional)	1 (in seconds)

Possible measurement type values:

Name	Value
Vickers, Knoop	1
Rockwell, HVT, HBT	2
HBW	3
H	4

Example:

← |AC 05|00|02|31|2|0|||69<0A>

→ |AC 05|00|10|31|2|3|1|1|51<0A>

3.1.3.5 Set holding times 'AC 06'

Sets the selected holding time for the transferred measurement type / group. The holding times must be specified in seconds.

Command type: Synchronous

Command example:

Type	Value
Identifier	AC 06
Transfer flags	00
Status flags	02
Data-type flags	31
Data 1 (measurement type)	2
Data 2	4 (in seconds)
Data 3	2 (in seconds)
Data 4	2 (in seconds)

Response:

Type	Value
Identifier	AC 06
Transfer flags	00
Status flags	10
Data-type flags	31
Data 1 (measurement type)	2
Data 2	4 (in seconds)
Data 3	2 (in seconds)
Data 4	2 (in seconds)

Possible measurement type values:

Name	Value
Vickers, Knoop	1

Rockwell, HVT, HBT	2
HBW	3
H	4

Example:

← |AC 06|00|02|31|2|4|2|2|56<0A>

→ |AC 06|00|10|31||17<0A>

3.1.4 Movement 'ADXXX'

Subgroup "D" contains functions for the movement settings.

3.1.4.1 DuraScan 'ADAXX'

Movement settings specifically for DuraScan.

3.1.4.1.1 Read revolver movement safety clearance 'ADA01'

Reads out the currently selected safety distance as of which the revolver is allowed to turn.

Command type: Synchronous

Command example:

Type	Value
Identifier	ADA01
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	ADA01
Transfer flags	00
Status flags	10
Data-type flags	01
Data	500000

Example:

← |ADA01|00|02|01||32<0A>

→ |ADA01|00|10|01|500000|56<0A>

3.1.4.1.2 Set revolver movement safety clearance

'ADA0<<>>'

Sets the selected safety distance as of which the revolver is allowed to turn.

Only change following consultation.

Command type: Synchronous

Command example:

Type	Value
Identifier	ADA02
Transfer flags	00
Status flags	02
Data-type flags	01
Data	500000

Response:

Type	Value
Identifier	ADA02
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Example:

← |ADA02|00|02|01|50000|28<0A>

→ |ADA02|00|10|01||32<0A>

3.1.5 Revolver 'AEXXX'

Subgroup "E" contains functions for the revolver.

3.1.5.1 DuraScan 'AEAXX'

Revolver settings specifically for DuraScan.

3.1.5.1.1 Read all tools 'AEA01'

Reads out all the tools installed on the revolver. The sequence of the tools relates to the base numbers.

Command type: Synchronous

Command example:

Type	Value
Identifier	AEA01
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	AEA01
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1 (revolver type)	MotorDriven6x
Data 2 (tool base 1)	HB_2_5
Data 3 (tool base 2)	Optik_10x
Data 4 (tool base 3)	Vickers
Data 5 (tool base 4)	4
Data 6 (tool base 5)	5
Data 7 (tool base 6)	6

Possible values:

[Transfer values](#) can be found in section 3.1.5.3

Example:

← |AEA01|00|02|10||33<0A>

→ |AEA01|00|10|30|3|1|16|7|15|4|17|20<0A>

3.1.5.1.2Read tool 'AEA03'

Reads out the currently selected tool.

Command type: Synchronous

Command example:

Type	Value
Identifier	AEA03
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	AEA03
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible values:

[Transfer values](#) can be found in section 3.1.5.3

Example:

← |AEA03|00|02|01||35<0A>

→ |AEA03|00|10|01|1|65<0A>

3.1.5.2 DuraVision & DuraPro 'AEBXX'

Revolver settings specifically for DuraVision & DuraPro.

3.1.5.2.1 Read all tools 'AEB01'

Reads out all the tools installed on the revolver. The sequence of the tools relates to the base numbers.

Command type: Synchronous

Command example:

Type	Value
Identifier	AEB01
Transfer flags	00
Status flags	02
Data-type flags	30
Data	

Response:

Type	Value
Identifier	AEB01
Transfer flags	00
Status flags	10
Data-type flags	30
Data 1 (revolver type)	3
Data 2 (tool base 1)	1
Data 3 (tool base 2)	16
Data 4 (tool base 3)	7
Data 5 (tool base 4)	15
Data 6 (tool base 5)	4
Data 7 (tool base 6)	17

Possible values:

[Transfer values](#) can be found in section 3.1.5.3

Example:

← |AEB01|00|02|30||36<0A>

→ |AEB01|00|10|30|3|1|16|7|15|4|17|21<0A>

3.1.5.2.2 Read tool 'AEB03'

Reads out the currently selected tool.

Command type: Synchronous

Command example:

Type	Value
Identifier	AEB03
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	AEB03
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible values:

[Transfer values](#) can be found in section 3.1.5.3

Example:

← |AEB03|00|02|01||36<0A>

→ |AEB03|00|10|01|1|66<0A>

3.1.5.3 Transfer values

Here is a list of all transferrable values.

Possible revolver type values:

Name	Value
Unknown	0
Swivel body	1
Manual 3x	2
Motor-revolver 6x	3

Possible tool values:

Name	Value
Unknown	0
Vickers	1
Knoop	2
HB 1	3
HB 2.5	4
HB 5	5
HB 10	6
Rockwell	7
Rockwell 1/2	8
Rockwell 1/4	9
Rockwell 1/8	10
Rockwell 1/16	11
Rockwell 2	12
Rockwell 3/4	13
Lens 2.5x	14
Lens 4x	15
Lens 10x	16
Lens 20x	17
Lens 40x	18
Lens 60x	19
Lens 100x	20
Lens auto	21 (this tool cannot be controlled)

3.2 Connection settings 'BXXXX'

Group "B" contains functions for the connection.

3.2.1 Connection 'BAXXX'

Subgroup "A" contains connection functions.

3.2.1.1 Open connection 'BA 01'

Prepares the ecos Workflow software for remote connection and disables the user interface.

Command type: Synchronous

Command example:

Type	Value
Identifier	BA 01
Transfer flags	00
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	BA 01
Transfer flags	00
Status flags	10
Data-type flags	00
Data	

Example:

← |BA 01|00|02|00||0E<0A>

→ |BA 01|00|10|00||0D<0A>

3.2.1.2 Close connection 'BA 02'

Closes the remote connection to the ecos Workflow Compact software and enables the user interface.

Command type: Synchronous

Command example:

Type	Value
Identifier	BA 02
Transfer flags	00
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	BA 02
Transfer flags	00
Status flags	10
Data-type flags	00
Data	

Example:

← |BA 02|00|02|00||0F<0A>

→ |BA 02|00|10|00||0E<0A>

3.3 Machine information 'CXXXX'

Group "C" contains functions pertaining to the machine.

3.3.1 Version 'CAXXX'

Subgroup "A" contains version information.

3.3.1.1 Read software version 'CA 01'

Reads out the version number of the ecos software.

Command type: Synchronous

Command example:

Type	Value
Identifier	CA 01
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	CA 01
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Ecos Workflow Version: 2.8.34

Example:

← |CA 01|00|02|03||12<0A>

→ |CA 01|00|10|03|Ecos Workflow Version: 2.8.34|A3<0A>

3.3.1.2 Read Lasal version 'CA 03'

Reads out the version number of the Lasal DLL.

Command type: Synchronous

Command example:

Type	Value
Identifier	CA 03
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	CA 03
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Lasal32.dll Version: 01.01.092

Example:

← |CA 03|00|02|03||14<0A>

→ |CA 03|00|10|03|Lasal32.dll Version: 01.01.092|E8<0A>

3.3.1.3 Read firmware version 'CA 05'

Reads out the version number of the firmware.

Command type: Synchronous

Command example:

Type	Value
Identifier	CA 05
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	CA 05
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Firmware Version: 1.08.04

Example:

← |CA 05|00|02|03||16<0A>

→ |CA 05|00|10|03|Firmware Version: 1.08.04|0B<0A>

3.3.1.4 Read uEye version 'CA 07'

Reads out the version number of the uEye DLL.

Command type: Synchronous

Command example:

Type	Value
Identifier	CA 07
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	CA 07
Transfer flags	00
Status flags	10
Data-type flags	03
Data	uEye SDK Version: 3.70.8

Example:

← |CA 07|00|02|03||18<0A>

→ |CA 07|00|10|03|uEye SDK Version: 3.70.8|3F<0A>

3.3.1.5 Read Open Interface version 'CA 09'

Reads out the version number of the Open Interface DLL.

Command type: Synchronous

Command example:

Type	Value
Identifier	CA 09
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	CA 09
Transfer flags	00
Status flags	10
Data-type flags	03
Data	EcosRemoteInterface.dll Version: 2.0.12

Example:

← |CA 09|00|02|03||1A<0A>

→ |CA 09|00|10|03|EcosRemoteInterface.dll Version: 2.0.12|8B<0A>

3.3.2 Machine 'CBXXX'

Subgroup "C" contains functions pertaining to the machine.

3.3.2.1 Read machine model 'CB 01'

Reads out the model name of the machine.

Command type: Synchronous

Command example:

Type	Value
Identifier	CB 01
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	CB 01
Transfer flags	00
Status flags	10
Data-type flags	01
Data	2

Possible values:

Name	Value
Unknown	0
DuraScan	1
DuraVision	2
DuraPro	3

Example:

← |CB 01|00|02|01||11<0A>

→ |CB 01|00|10|01|2|42<0A>

3.3.2.2 Read machine variant 'CB 03'

Reads out the variant of the machine.

Command type: Synchronous**Command example:**

Type	Value
Identifier	CB 03
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	CB 03
Transfer flags	00
Status flags	10
Data-type flags	01
Data	DV 40

Possible tool values:

Name	Value
Unknown	0
DS 10	1
DS 20	2
DS 50	3
DS 70	4
DS 80	5
DV 20	6
DV 200	7
DV 250	8
DV 30	9
DV 300	10
DV 350	11
DV 40	12
DV 400	13
DV 450	14
DP 300	15

DP 400	16
DP 500	17

Example:

← |CB 03|00|02|01||13<0A>

→ |CB 03|00|10|01|6|48<0A>

3.3.2.3 Read test load 'CB 05'

Reads out the test load of the machine; this is only possible with DuraVision and DuraPro models.

Command type: Synchronous

Command example:

Type	Value
Identifier	CB 05
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	CB 05
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible tool values:

Name	Value
Unknown	0
Load 250 kg	1
Load 750 kg	2
Load 3000 kg	3

Example:

← |CB 05|00|02|01||15<0A>

→ |CB 05|00|10|01|1|45<0A>

3.3.2.4 Read all lenses 'CB 07'

Reads out all the installed lenses.

Command type: Synchronous

Command example:

Type	Value
Identifier	CB 07
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	CB 07
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	21
Data N	...

Possible values:

Name	Value
Unknown	0
Lens 2.5x	14
Lens 4x	15
Lens 10x	16
Lens 20x	17
Lens 40x	18
Lens 60x	19
Lens 100x	20
Lens auto	21

Example:

← |CB 07|00|02|10||17<0A>

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➔ |CB 07|00|10|10|21|16|15|17|22<0A>

3.3.2.5 Read all indenters 'CB 09'

Reads out all installed indenters.

Command type: Synchronous

Command example:

Type	Value
Identifier	CB 09
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	CB 09
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	HB_2_5
Data 2	Vickers
Data N	...

Possible tool values:

Name	Value
Unknown	0
Vickers	1
Knoop	2
HB 1	3
HB 2.5	4
HB 5	5
HB 10	6
Rockwell	7
Rockwell 1/2	8
Rockwell 1/4	9
Rockwell 1/8	10

Rockwell 1/16	11
Rockwell 2	12
Rockwell 3/4	13

Example:

← |CB 09|00|02|10||19<0A>

→ |CB 09|00|10|10|1|7|4|AC <0A>

3.3.2.6 Read all zoom lenses 'CB 11'

Indicates whether a zoom lens is installed.

Command type: Synchronous

Command example:

Type	Value
Identifier	CB 11
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	CB 11
Transfer flags	00
Status flags	10
Data-type flags	04
Data	0

Possible values for active/inactive:

Name	Value
False	0
True	1

Example:

← |CB 11|00|02|04||15<0A>

→ |CB 11|00|10|04|0|44<0A>

3.4 Measurement properties 'DXXXX'

Group "D" contains functions pertaining to measurement properties.

3.4.1 Quick configuration 'DAXXX'

Subgroup "A" contains functions pertaining to quick configuration.

3.4.1.1 Set quick configuration 'DA 01'

Sets all test settings in one command.

Command type: Synchronous

Command example:

Type	Value
Identifier	DA 01
Transfer flags	00
Status flags	02
Data-type flags	23
Data (test procedure)	1
Data (test method)	12
Data (lens)	21
Data (zoom level)	1
Data (circular light) (optional)	0
Data (conversion) (optional)	1
Data (conversion table) (optional)	1
Data (conversion material) (optional)	1
Data (conversion method) (optional)	36
Data (limits) (optional)	1
Data (max. limit) (optional)	900 (value)
Data (min. limit) (optional)	100 (value)
Data (component correction) (optional)	1
Data (component correction shape) (optional)	2
Data (component correction curvature) (optional)	2
Data (component correction angle) (optional)	0
Data (component correction diameter) (optional)	90 (value)
Data (message) (optional)	

Response:

Type	Value
Identifier	DA 01
Transfer flags	00

Status flags	10
Data-type flags	23
Data	

Possible test procedure values:

[Transfer values](#) can be found in section 3.4.5.5

Possible test method values:

[Transfer values](#) can be found in section 3.4.8.4

Possible lens values:

[Transfer values](#) can be found in section 3.4.9.3

Possible zoom level values:

[Transfer values](#) can be found in section 3.4.13.4

Possible circular light values:

Name	Value
False	0
True	1

Possible conversion values:

[Transfer values](#) can be found in section 3.4.3.9

Possible limit values:

Name	Value
False	0
True	1

Possible component correction values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |DA 02|00|10|23|1|12|21|1|0|1|1|1|36|1|900|300|1|2|2|0|90|B4<0A>

→ |DA 02|00|10|23||15<0A>

3.4.2 Additional test point designations 'DBXXX'

Subgroup "B" contains functions pertaining to additional test point designations.

3.4.2.1 Read status of additional test point designation

1 'DB 01'

Reads out the status of the first additional test point designation - whether it is active or inactive. The parameter is specified using a Boolean true or false value.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 01
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	DB 01
Transfer flags	00
Status flags	10
Data-type flags	04
Data	1

Possible values:

Name	Value
False	0
True	1

Example:

← |DB 01|00|02|04||15<0A>

→ |DB 01|00|10|04|1|45<0A>

3.4.2.2 Set status of additional test point designation 1 'DB 02'

Sets the status of the first additional test point designation to active or inactive.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 02
Transfer flags	00
Status flags	02
Data-type flags	02
Data	True

Response:

Type	Value
Identifier	DB 02
Transfer flags	00
Status flags	10
Data-type flags	02
Data	

Possible values:

Name	Value
False	0
True	1

Example:

← |DB 02|00|02|04|1|47<0A>

→ |DB 02|00|10|04||15<0A>

3.4.2.3 Read content of additional test point designation 1 'DB 03'

Reads out the content of the first additional test point designation.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 03
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DB 03
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Additional information 1

Example:

← |DB 03|00|02|03||16<0A>

→ |DB 03|00|10|03|Additional information 1|BD<0A>

3.4.2.4 Set content of additional test point designation

1 'DB 04'

Sets the content of the first additional test point designation.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 04
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Additional information 1

Response:

Type	Value
Identifier	DB 04
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DB 04|00|02|03|Additional information 1|9F<0A>

→ |DB 04|00|10|03||16<0A>

3.4.2.5 Read status of additional test point designation

2 'DB 05'

Reads out the status of the second additional test point designation - whether it is active or inactive. The parameter is specified using a Boolean true or false value.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 05
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	DB 05
Transfer flags	00
Status flags	10
Data-type flags	04
Data	1

Possible values:

Name	Value
False	0
True	1

Example:

← |DB 05|00|02|04||19<0A>

→ |DB 05|00|10|04|1|49<0A>

3.4.2.6 Set status of additional test point designation 2 'DB 06'

Sets the second additional test point designation to active or inactive.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 06
Transfer flags	00
Status flags	02
Data-type flags	04
Data	1

Response:

Type	Value
Identifier	DB 06
Transfer flags	00
Status flags	10
Data-type flags	04
Data	

Possible values:

Name	Value
False	0
True	1

Example:

← |DB 06|00|02|04|1|4B<0A>

→ |DB 06|00|10|04||19<0A>

3.4.2.7 Read content of additional test point designation 2 'DB 07'

Reads out the content of the second additional test point designation.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 07
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DB 07
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Additional information 2

Example:

← |DB 07|00|02|03||1A<0A>

→ |DB 07|00|10|03|Additional information 2|A2<0A>

3.4.2.8 Set content of additional test point designation 2 'DB 08'

Sets the content of the second additional test point designation.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 08
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Additional information 2

Response:

Type	Value
Identifier	DB 08
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DB 08|00|02|03|Additional information 2|A4<0A>

→ |DB 08|00|10|03||1A<0A>

3.4.2.9 Read status of additional test point designation

3 'DB 09'

Reads out the status of the third additional test point designation - whether it is active or inactive. The parameter is specified using a Boolean true or false value.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 09
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	DB 09
Transfer flags	00
Status flags	10
Data-type flags	04
Data	1

Possible values:

Name	Value
False	0
True	1

Example:

← |DB 09|00|02|04||1D<0A>

→ |DB 09|00|10|04|0|4C<0A>

3.4.2.10 Set status of additional test point designation 3 'DB 10'

Sets the third additional test point designation to active or inactive.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 10
Transfer flags	00
Status flags	02
Data-type flags	04
Data	1

Response:

Type	Value
Identifier	DB 10
Transfer flags	00
Status flags	10
Data-type flags	04
Data	

Possible values:

Name	Value
False	0
True	1

Example:

← |DB 10|00|02|04|1|46<0A>

→ |DB 10|00|10|04||14<0A>

3.4.2.11 Read content of additional test point designation 3 'DB 11'

Reads out the content of the third additional test point designation.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 11
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DB 11
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Additional information 2

Example:

← |DB 11|00|02|03||15<0A>

→ |DB 11|00|10|03|Additional information 3|9E<0A>

3.4.2.12 Set content of additional test point designation

3 'DB 12'

Sets the content of the third additional test point designation.

Command type: Synchronous

Command example:

Type	Value
Identifier	DB 12
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Additional information 3

Response:

Type	Value
Identifier	DB 12
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DB 12|00|02|03|Additional information 3|A0<0A>

→ |DB 12|00|10|03||15<0A>

3.4.3 Conversion 'DCXXX'

Subgroup "C" contains settings for conversion of the measured value.

3.4.3.1 Read conversion settings 'DC 01'

Reads out all currently configured settings that are required for conversion.

Command type: Synchronous

Command example:

Type	Value
Identifier	DC 01
Transfer flags	00
Status flags	02
Data-type flags	21
Data	

Response:

Type	Value
Identifier	DC 01
Transfer flags	00
Status flags	10
Data-type flags	21
Data 1 (active)	1
Data 2 (table)	1
Data 3 (material)	1
Data 4 (method filter)	10
Data 5 (method)	36

Possible values:

[Transfer values](#) can be found in section 3.4.3.9

Example:

← |DC 01|00|02|21||15<0A>

→ |DC 01|00|10|21|1|1|1|10|36|61<0A>

3.4.3.2 Set conversion settings 'DC 02'

Sets all configured settings that are required for conversion. Ensure here that the settings are transferred correctly and logically.

Command type: Synchronous**Command example:**

Type	Value
Identifier	DC 02
Transfer flags	00
Status flags	02
Data-type flags	20
Data 1 (active)	1
Data 2 (table)	1
Data 3 (material)	1
Data 4 (method groups)	10
Data 5 (method)	36

Response:

Type	Value
Identifier	DC 02
Transfer flags	00
Status flags	10
Data-type flags	20
Data 1 (active)	1
Data 2 (table)	1
Data 3 (material)	1
Data 4 (method groups)	10
Data 5 (method)	36

Possible values:[Transfer values](#) can be found in section 3.4.3.9**Example:**

← |DC 02|00|02|20|True|DIN EN 50150|Emcotest Table|HR 1/8|HRK|D0<0A>

→ |DC 02|00|10|20|True|DIN EN 50150|Emcotest Table|HR 1/8|HRK|CF<0A>

3.4.3.3 Read conversion status 'DC 03'

Reads out the status of the conversion - whether it is active or inactive.

Command type: Synchronous

Command example:

Type	Value
Identifier	DC 03
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	DC 03
Transfer flags	00
Status flags	10
Data-type flags	04
Data	1

Possible values:

[Transfer values](#) can be found in section 3.4.3.9

Example:

← |DC 03|00|02|04||15<0A>

→ |DC 03|00|10|04|1|B4<0A>

3.4.3.4 Set conversion status 'DC 04'

Sets the status of the conversion to active or inactive. If conversion is activated, the other settings, such as table, material and method, must also be configured, otherwise default values will be used.

Command type: Synchronous

Command example:

Type	Value
Identifier	DC 04
Transfer flags	00
Status flags	02
Data-type flags	04
Data	1

Response:

Type	Value
Identifier	DC 04
Transfer flags	00
Status flags	10
Data-type flags	04
Data	

Possible values:

[Transfer values](#) can be found in section 3.4.3.9

Example:

← |DC 04|00|02|04|1|4A<0A>

→ |DC 04|00|10|04||18<0A>

3.4.3.5 Read conversion tables 'DC 05'

Reads out all conversion tables. If conversion is inactive, the result is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	DC 05
Transfer flags	00
Status flags	02
Data-type flags	11
Data	

Response:

Type	Value
Identifier	DC 05
Transfer flags	00
Status flags	10
Data-type flags	11
Data 1	1
Data 2	2
Data 3	3

Possible values:

[Transfer values](#) can be found in section 3.4.3.9

Example:

← |DC 05|00|02|11||18<0A>

→ |DC 05|00|10|10|1|2|3|A4<0A>

3.4.3.6 Read conversion materials 'DC 10'

Reads out all conversion materials subject to the configured conversion table. If conversion is inactive, the result is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	DC 10
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	DC 10
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	Emcotest Table
Data N	...

Possible values:

[Transfer values](#) can be found in section 3.4.3.9

Example:

← |DC 10|00|02|10||13<0A>

→ |DC 10|00|10|10|2|3|4|5|11|32<0A>

3.4.3.7 Read conversion method groups 'DC 14'

Reads out all conversion method groups, subject to the configured conversion table and the conversion materials. If conversion is inactive, the result is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	DC 14
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	DC 14
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	2
Data N	...

Possible values:

[Transfer values](#) can be found in section 3.4.3.9

Example:

← |DC 14|00|02|10||17<0A>

→ |DC 14|00|10|10|10|2|3|4|9|39<0A>

3.4.3.8 Read conversion methods 'DC 18'

Reads out all conversion methods, subject to the configured conversion table, the conversion materials, and the conversion method groups. If conversion is inactive, the result is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	DC 18
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	DC 18
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	8
Data N	...

Possible values:

[Transfer values](#) can be found in section 3.4.3.9

Example:

← |DC 18|00|02|10||1B<0A>

→ |DC 18|00|10|10|8|10|12|13|17|19|B8<0A>

3.4.3.9 Transfer values

Here is a list of all transferrable values.

Possible values for active/inactive:

Name	Value
False	0
True	1

Possible values for conversion standards (corresponds to conversion table in software):

Name	Value
DIN EN 50150	1
ASTM E140 05	2
EN ISO 18265	3

Possible conversion tables (corresponds to conversion material in software):

Name	Value
EN ISO 18265 Emcotest Table	1
ASTM E140 Table 1	2
ASTM E140 Table 2	3
ASTM E140 Table 3	4
ASTM E140 Table 4	5
ASTM E140 Table 5	6
ASTM E140 Table 6.1	7
ASTM E140 Table 6.2	8
ASTM E140 Table 7	9
ASTM E140 Table 8	10
ASTM E140 Table 9	11
DIN EN 50150 Table A1	12
DIN EN 50150 Table B2	13
DIN EN 50150 Table B3	14
DIN EN 50150 Table B4	15
DIN EN 50150 Table C2	16
DIN EN 50150 Table D2	17
DIN EN 50150 Table D4	18
DIN EN 50150 Table D6	19

DIN EN 50150 Table D8	20
DIN EN 50150 Table E2	21

Possible values for display filter (corresponds to conversion method in software):

Name	Value
HV 136°	1
HK 127.5°	2
HR 1/16	3
HR 1/8	4
HR 1/4	5
HR 1/2	6
HR 3/4	7
HR 2	8
HR 120°	9
General	10

Possible conversion methods (corresponds to conversion methods in software):

Name	Value
HV	1
HV 0.1	2
HV 1	3
HV 5	4
HV 10	5
HV 50	6
HK	7
HRB	8
HRB 1.02mm Strip and Greate	9
HRF	10
HRF 1.02mm Strip and Greate	11
HRG	12
HR15T	13
HR15T 0.25 mm Strip	14
HR15T 0.51 mm Strip	15
HR15T 1.02mm Strip and Greate	16
HR30T	17

HR30T 1.02mm Strip and Greate	18
HR45T	19
HR45T 1.02mm Strip and Greate	20
HRE	21
HRK	22
HRH	23
HR15W	24
HRA	25
HRC	26
HRD	27
HR15N	28
HR30N	29
HR45N	30
HBS	31
HBS 2/20 1.02mm Strip	32
HBS 10/500 2.03mm Strip	33
HB 5	34
HB 10	35
HB 30	36
RM	37
MPA	38
N mm 2	39
KP mm 2	40
SCLEROSCOPE	41

3.4.4 Geometry correction 'DDXXX'

Subgroup "D" contains functions for geometry correction.

3.4.4.1 Read geometry correction settings 'DD 01'

Reads out all currently configured settings that are required for geometry correction.

Command type: Synchronous

Command example:

Type	Value
Identifier	DD 01
Transfer flags	00
Status flags	02
Data-type flags	22
Data	

Response:

Type	Value
Identifier	DD 01
Transfer flags	00
Status flags	10
Data-type flags	22
Data 1 (active)	1
Data 2 (shape)	2
Data 3 (curvature)	2
Data 4 (angle)	45
Data 5 (diameter)	90 (in mm)

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |DD 01|00|02|22|0|||0|67<0A>

→ |DD 01|00|10|22|1|2|2|45|90|6D<0A>

3.4.4.2 Set geometry correction settings 'DD 02'

Sets all configured settings that are required for geometry correction.

Command type: Synchronous

Command example:

Type	Value
Identifier	DD 02
Transfer flags	00
Status flags	02
Data-type flags	22
Data 1 (active)	1
Data 2 (shape)	2
Data 3 (curvature)	2
Data 4 (angle)	45
Data 5 (diameter)	90

Response:

Type	Value
Identifier	DD 02
Transfer flags	00
Status flags	10
Data-type flags	22
Data	

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |DD 02|00|02|22|1|2|2|45|90|6F<0A>

→ |DD 02|00|10|22||17<0A>

3.4.4.3 Read geometry correction status 'DD 03'

Reads out the status of the geometry correction - whether it is active or inactive.

Command type: Synchronous

Command example:

Type	Value
Identifier	DD 03
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	DD 03
Transfer flags	00
Status flags	10
Data-type flags	04
Data	1

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |DD 03|00|02|04||19<0A>

→ |DD 03|00|10|04|1|49<0A>

3.4.4.4 Set geometry correction status 'DD 04'

Sets the status of geometry correction to active or inactive. Sets the status of geometry correction to active or inactive. If geometry correction is activated, the other settings, such as the shape, curvature, angle and diameter, must also be configured, otherwise default values will be used.

Command type: Synchronous

Command example:

Type	Value
Identifier	DD 04
Transfer flags	00
Status flags	02
Data-type flags	04
Data	1

Response:

Type	Value
Identifier	DD 04
Transfer flags	00
Status flags	10
Data-type flags	04
Data	

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |DD 04|00|02|04|1|4B<0A>

→ |DD 04|00|10|04||19<0A>

3.4.4.5 Read geometry correction shapes 'DD 05'

Reads out all the geometry correction shapes.

Command type: Synchronous

Command example:

Type	Value
Identifier	DD 05
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	DD 05
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	1
Data 2	2

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |DD 05|00|02|10||18<0A>

→ |DD 05|00|10|10|1|2|F6<0A>

3.4.4.6 Read geometry correction curvatures 'DD 09'

Reads out all the geometry correction curvatures.

Command type: Synchronous

Command example:

Type	Value
Identifier	DD 09
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	DD 09
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	1
Data 2	2

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |DD 09|00|02|10||1C<0A>

→ |DD 09|00|10|10|1|2|FA<0A>

3.4.4.7 Read geometry correction angles 'DD 13'

Reads out all the geometry correction angles.

Command type: Synchronous

Command example:

Type	Value
Identifier	DD 13
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	DD 13
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	0
Data 2	45

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |DD 13|00|02|10||17<0A>

→ |DD 13|00|10|10|0|45|2B<0A>

3.4.4.8 Transfer values

Here is a list of all transferrable values.

Possible values for active/inactive:

Name	Value
False	0
True	1

Possible shape values:

Name	Value
Globe	1
Cylinder	2

Possible curvature values:

Name	Value
Convex	1
Concave	2

Possible angle values:

Name	Value
0°	0
45°	45

3.4.5 Test procedure 'DEXXX'

Subgroup "E" contains functions pertaining to test types.

3.4.5.1 Read all possible test procedures 'DE 01'

Reads out all possible test procedures.

Command type: Synchronous

Command example:

Type	Value
Identifier	DE 01
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	DE 01
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	1
Data 2	3
Data 3	7
Data N	...

Possible values:

[Transfer values](#) can be found in section 3.4.5.5

Example:

← |DE 01|00|02|10||15<0A>

→ |DE 01|00|10|10|1|3|7|4|5|08<0A>

3.4.5.2 Read all displayed test procedures 'DE 02'

Reads out all displayed test procedures.

Command type: Synchronous

Command example:

Type	Value
Identifier	DE 02
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	DE 02
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	1
Data 2	7
Data N	...

Possible values:

[Transfer values](#) can be found in section 3.4.5.5

Example:

← |DE 02|00|02|10||16<0A>

→ |DE 02|00|10|10|1|7|3|A8<0A>

3.4.5.3 Read test procedure 'DE 03'

Reads out the test procedure currently selected.

Command type: Synchronous

Command example:

Type	Value
Identifier	DE 03
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	DE 03
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible values:

[Transfer values](#) can be found in section 3.4.5.5

Example:

← |DE 03|00|02|01||17<0A>

→ |DE 03|00|10|01|1|47<0A>

3.4.5.4 Set test procedure 'DE 04'

Sets the selected test procedure in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	DE 04
Transfer flags	00
Status flags	02
Data-type flags	01
Data	1

Response:

Type	Value
Identifier	DE 04
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible values:

[Transfer values](#) can be found in section 3.4.5.5

Example:

← |DE 04|00|02|01|1|49<0A>

→ |DE 04|00|10|01||17<0A>

3.4.5.5 Transfer values

Here is a list of all transferrable values.

Possible test procedure values:

Name	Value
Unknown	0
Vickers	1
Knoop	2
HBW	3
HBT	4
HVT	5
H	6
Rockwell	7

3.4.6 Circular light 'DFXXX'

Subgroup "F" contains functions pertaining to circular light.

3.4.6.1 Check circular light status 'DF 01'

Reads out the status -whether a circular light is at all possible with the current configuration.

Command type: Synchronous

Command example:

Type	Value
Identifier	DF 01
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	DF 01
Transfer flags	00
Status flags	10
Data-type flags	04
Data	0

Possible values:

Name	Value
False	0
True	1

Example:

← |DF 01|00|02|04||19<0A>

→ |DF 01|00|10|04|0|48<0A>

3.4.6.2 Read circular light status 'DF 01'

Reads out the status of the circular light - whether it is active or inactive.

Command type: Synchronous

Command example:

Type	Value
Identifier	DF 01
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	DF 01
Transfer flags	00
Status flags	10
Data-type flags	04
Data	0

Possible values:

Name	Value
False	0
True	1

Example:

← |DF 01|00|02|04||19<0A>

→ |DF 01|00|10|04|0|48<0A>

3.4.6.3 Set circular light status 'DF 02'

Sets the status of the circular light to active or inactive.

Command type: Synchronous

Command example:

Type	Value
Identifier	DF 02
Transfer flags	00
Status flags	02
Data-type flags	04
Data	1

Response:

Type	Value
Identifier	DF 02
Transfer flags	00
Status flags	10
Data-type flags	04
Data	

Possible values:

Name	Value
False	0
True	1

Example:

← |DF 02|00|02|04|1|4B<0A>

→ |DF 02|00|10|04|0|49<0A>

3.4.7 Hardness limit 'DGXXX'

Subgroup "G" contains functions pertaining to limits.

3.4.7.1 Read hardness limit status 'DG 01'

Reads out the status of the limits - whether they are active or inactive.

Command type: Synchronous

Command example:

Type	Value
Identifier	DG 01
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	DG 01
Transfer flags	00
Status flags	10
Data-type flags	04
Data	1

Possible values:

Name	Value
False	0
True	1

Example:

← |DG 01|00|02|04||1A<0A>

→ |DG 01|00|10|04|1|4A<0A>

3.4.7.2 Set hardness limit status 'DG 02'

Sets the status of the limit to active or inactive. If it is set to active, the Min Limit and Max Limit values must also be configured.

Command type: Synchronous

Command example:

Type	Value
Identifier	DG 02
Transfer flags	00
Status flags	02
Data-type flags	04
Data	1

Response:

Type	Value
Identifier	DG 02
Transfer flags	00
Status flags	10
Data-type flags	04
Data	

Possible values:

Name	Value
False	0
True	1

Example:

← |DG 02|00|02|04|1|4C<0A>

→ |DG 02|00|10|04||1A<0A>

3.4.7.3 Read unit of hardness limit 'DG 03'

Reads out the unit of measurement for the limit.

Command type: Synchronous

Command example:

Type	Value
Identifier	DG 03
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DG 03
Transfer flags	00
Status flags	10
Data-type flags	03
Data	HB 30

Example:

← |DG 03|00|02|03||1B<0A>

→ |DG 03|00|10|03|HV|B8<0A>

3.4.7.4 Read minimum hardness limit 'DG 05'

Reads out the minimum limit.

Command type: Synchronous

Command example:

Type	Value
Identifier	DG 05
Transfer flags	00
Status flags	02
Data-type flags	02
Data	

Response:

Type	Value
Identifier	DG 05
Transfer flags	00
Status flags	10
Data-type flags	02
Data	500

Example:

← |DG 05|00|02|02||1C<0A>

→ |DG 05|00|10|02|300|AE<0A>

3.4.7.5 Set minimum hardness limit 'DG 06'

Sets the minimum limit.

Command type: Synchronous

Command example:

Type	Value
Identifier	DG 06
Transfer flags	00
Status flags	02
Data-type flags	02
Data	501

Response:

Type	Value
Identifier	DG 06
Transfer flags	00
Status flags	10
Data-type flags	02
Data	

Example:

← |DG 06|00|02|02|501|B3<0A>

→ |DG 06|00|10|02||1C<0A>

3.4.7.6 Read maximum hardness limit 'DG 07'

Reads out the maximum limit.

Command type: Synchronous

Command example:

Type	Value
Identifier	DG 07
Transfer flags	00
Status flags	02
Data-type flags	02
Data	

Response:

Type	Value
Identifier	DG 07
Transfer flags	00
Status flags	10
Data-type flags	02
Data	604

Example:

← |DG 07|00|02|02||1E<0A>

→ |DG 07|00|10|02|900|B6<0A>

3.4.7.7 Set maximum hardness limit 'DG 08'

Sets the maximum limit.

Command type: Synchronous

Command example:

Type	Value
Identifier	DG 08
Transfer flags	00
Status flags	02
Data-type flags	02
Data	905

Response:

Type	Value
Identifier	DG 08
Transfer flags	00
Status flags	10
Data-type flags	02
Data	

Example:

← |DG 08|00|02|02|905|BD<0A>

→ |DG 08|00|10|02||1E<0A>

3.4.8 Test methods 'DHXXX'

Subgroup "H" contains functions pertaining to test methods.

3.4.8.1 Read all test methods 'DH 01'

Reads out all test methods subject to the test type.

Command type: Synchronous

Command example:

Type	Value
Identifier	DH 01
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	DH 01
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	8
Data 2	9
Data 3	10
Data N	...

Possible values:

[Transfer values](#) can be found in section 3.4.8.4

Example:

← |DH 01|00|02|10||18<0A>

→ |DH 01|00|10|10|8|9|10|11|12|13|14|15|16|17|08<0A>

3.4.8.2 Read test method 'DH 03'

Reads out the selected test method from the software.

Command type: Synchronous

Command example:

Type	Value
Identifier	DH 03
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	DH 03
Transfer flags	00
Status flags	10
Data-type flags	01
Data	13

Possible values:

[Transfer values](#) can be found in section 3.4.8.4

Example:

← |DH 03|00|02|01||1A<0A>

→ |DH 03|00|10|01|13|7D <0A>

3.4.8.3 Set test method 'DH 04'

Sets the test method to the transferred value.

Command type: Synchronous

Command example:

Type	Value
Identifier	DH 04
Transfer flags	00
Status flags	02
Data-type flags	01
Data	13

Response:

Type	Value
Identifier	DH 04
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible values:

[Transfer values](#) can be found in section 3.4.8.4

Example:

← |DH 04|00|02|01|13|7F<0A>

→ |DH 04|00|10|01||1A<0A>

3.4.8.4 Transfer values

Here is a list of all transferrable values.

Possible test type values:

Name	Value
Unknown	0
HV 0.01	1
HV 0.025	2
HV 0.05	3
HV 0.1	4
HV 0.2	5
HV 0.3	6
HV 0.5	7
HV 1	8
HV 2	9
HV 2.5	10
HV 3	11
HV 5	12
HV 10	13
HV 20	14
HV 30	15
HV 50	16
HV 100	17
HK 0.01	18
HK 0.025	19
HK 0.05	20
HK 0.1	21
HK 0.2	22
HK 0.3	23
HK 0.5	24
HK 1	25
HK 2	26
HBW 1/1	27
HBW 1/2.5	28
HBW 1/5	29

HBW 1/10	30
HBW 1/30	31
HBW 2.5/6_25	32
HBW 2.5/15.625	33
HBW 2.5/31.25	34
HBW 2.5/62.5	35
HBW 2.5/187.5	36
HBW 5_25	37
HBW 5/62_5	38
HBW 5/125	39
HBW 5/250	40
HBW 5/750	41
HBW 10/100	42
HBW 10/250	43
HBW 10/500	44
HBW 10/1000	45
HBW 10/1500	46
HBW 10/3000	47
HRA	48
HRC	49
HRD	50
HR15N	51
HR30N	52
HR45N	53
HR 2/10	54
HR 2/20	55
HR 2/40	56
HR 2/120	57
HRX	58
HR Y	59
HRZ	60
HRR	61
HRS	62
HRV	63
HR15Y	64
HR30Y	65

HR45Y	66
HRL	67
HRM	68
HRP	69
HR15X	70
HR30X	71
HR45X	72
HRE	73
HRH	74
HRK	75
HR15W	76
HR30W	77
HR45W	78
HRB	79
HRF	80
HRG	81
HR15T	82
HR30T	83
HR45T	84
HBT 1/5	85
HBT 1/10	86
HBT 1/30	87
HBT 2.5/31.25	88
HBT 2.5/62.5	89
HBT 2.5/187.5	90
HBT 5/125	91
HBT 5/250	92
HBT 5/750	93
HBT 10/500	94
HBT 10/1000	95
HBT 10/1500	96
HBT 10/3000	97
HVT1	98
HVT2	99
HVT3	100
HVT5	101

HVT10	102
HVT20	103
HVT30	104
HVT50	105
HVT100	106
H 49	107
H 132	108
H 358	109
H 961	110

3.4.9 Lens 'DIXXX'

Subgroup "I" contains functions for the lenses.

3.4.9.1 Read lens 'DI 01'

Reads out the selected lens that is configured in the software.

Command type: Synchronous

Command example:

Type	Value
Identifier	DI 01
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	DI 01
Transfer flags	00
Status flags	10
Data-type flags	01
Data	17

Possible values:

[Transfer values](#) can be found in section 3.4.9.3

Example:

← |DI 01|00|02|01||19<0A>

→ |DI 01|00|10|01|17|80<0A>

3.4.9.2 Control lens 'DI 02'

Sets the transferred lens in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	DI 02
Transfer flags	00
Status flags	02
Data-type flags	01
Data	18

Response:

Type	Value
Identifier	DI 02
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible values:

[Transfer values](#) can be found in section 3.4.9.3

Example:

← |DI 02|00|02|01|17|82<0A>

→ |DI 02|00|10|01||19<0A>

3.4.9.3 Transfer values

Here is a list of all transferrable values.

Possible lens values:

Name	Value
Unknown	0
Lens 2.5x	14
Lens 4x	15
Lens 10x	16
Lens 20x	17
Lens 40x	18
Lens 60x	19
Lens 100x	20
Lens auto	21

3.4.10 Test templates 'DJXXX'

Subgroup "J" contains functions for test templates.

3.4.10.1 Read all test templates 'DJ 01'

Reads out all the names of available test templates.

Command type: Synchronous

Command example:

Type	Value
Identifier	DJ 01
Transfer flags	00
Status flags	02
Data-type flags	11
Data	

Response:

Type	Value
Identifier	DJ 01
Transfer flags	00
Status flags	10
Data-type flags	11
Data 1	Template 1
Data N	...

Example:

← |DJ 01|00|02|11||1B<0A>

→ |DJ 01|00|10|11| Template 1|Template 2|F9<0A>

3.4.10.2 Set test template 'DJ 04'

Sets the selected test template based on the name. This template is loaded by the ecos Workflow software. After successful loading, the ecos Workflow software goes to the Position tab.

Command type: Synchronous

Command example:

Type	Value
Identifier	DJ 04
Transfer flags	00
Status flags	02
Data-type flags	03
Data (test template name)	Template

Response:

Type	Value
Identifier	DJ 04
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DJ 04|00|02|03|Template|EF<0A>

→ |DJ 04|00|10|03||1E<0A>

3.4.11 Test type 'DKXXX'

Subgroup "K" contains functions for the test type.

3.4.11.1 Read all test types 'DK 01'

Reads out a list of all test types.

Command type: Synchronous

Command example:

Type	Value
Identifier	DK 01
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	DK 01
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	1
Data N	...

Possible values:

[Transfer values](#) can be found in section 3.4.11.4

Example:

← |DK 01|00|02|10||1B<0A>

→ |DK 01|00|10|10|1|4B<0A>

3.4.11.2 Read test type 'DK 03'

Reads out the currently selected test type.

Command type: Synchronous

Command example:

Type	Value
Identifier	DK 03
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	DK 03
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible values:

[Transfer values](#) can be found in section 3.4.11.4

Example:

← |DK 03|00|02|02||1E<0A>

→ |DK 03|00|10|01|1|4D<0A>

3.4.11.3 Set test type 'DK 04'

Sets the selected test type in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	DK 04
Transfer flags	00
Status flags	02
Data-type flags	01
Data (test template name)	1

Response:

Type	Value
Identifier	DK 04
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible values:

[Transfer values](#) can be found in section 3.4.11.4

Example:

← |DK 04|00|02|01|1|4F<0A>

→ |DK 04|00|10|01||1D<0A>

3.4.11.4 Transfer values

Here is a list of all transferrable values.

Possible lens values:

Name	Value
Unknown	0
Single measurement	1
Series measurement	Not possible
CHD	Not possible
NTH	Not possible
RHT	Not possible

3.4.12 User fields 'DLXXX'

Subgroup "L" contains functions for the user fields.

3.4.12.1 Read designation of user field 1 'DL 01'

Reads out the designation of the first user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 01
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 01
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Userfield 1

Example:

← |DL 01|00|02|03||1E<0A>

→ |DL 01|00|10|03|Userfield 1|11<0A>

3.4.12.2 Set designation of user field 1 'DL 02'

Sets the designation of the first user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 02
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Userfield new 1

Response:

Type	Value
Identifier	DL 02
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 02|00|02|03|Userfield new 1|7D<0A>

→ |DL 02|00|10|03||1E<0A>

3.4.12.3 Read content of user field 1 'DL 03'

Reads out the content of the first user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 03
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 03
Transfer flags	00
Status flags	10
Data-type flags	03
Data	EMCO TEST

Example:

← |DL 03|00|02|03||20<0A>

→ |DL 03|00|10|03|EMCO TEST|A3<0A>

3.4.12.4 Set content of user field 1 'DL 04'

Sets the content of the first user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 04
Transfer flags	00
Status flags	02
Data-type flags	03
Data	EMCO TEST new 1

Response:

Type	Value
Identifier	DL 04
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 04|00|02|03|EMCO TEST new 1|60<0A>

→ |DL 04|00|10|03||20<0A>

3.4.12.5 Read designation of user field 2 'DL 05'

Reads out the designation of the second user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 05
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 05
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Userfield 2

Example:

← |DL 05|00|02|03||22<0A>

→ |DL 05|00|10|03|Userfield 2|16<0A>

3.4.12.6 Set designation of user field 2 'DL 06'

Sets the designation of the second user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 06
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Userfield new 2

Response:

Type	Value
Identifier	DL 06
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 06|00|02|03|Userfield new 2|82<0A>

→ |DL 06|00|10|03||22<0A>

3.4.12.7 Read content of user field 2 'DL 07'

Reads out the content of the second user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 07
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 07
Transfer flags	00
Status flags	10
Data-type flags	03
Data	EMCO TEST

Example:

← |DL 07|00|02|03||24<0A>

→ |DL 07|00|10|03|EMCO TEST|A7<0A>

3.4.12.8 Set content of user field 2 'DL 08'

Sets the content of the second user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 08
Transfer flags	00
Status flags	02
Data-type flags	03
Data	EMCO TEST new 2

Response:

Type	Value
Identifier	DL 08
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 08|00|02|03|EMCO TEST new 2|65<0A>

→ |DL 08|00|10|03||24<0A>

3.4.12.9 Read designation of user field 3 'DL 09'

Reads out the designation of the third user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 09
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 09
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Userfield 3

Example:

← |DL 09|00|02|03||26<0A>

→ |DL 09|00|10|03|Userfield 3|1B<0A>

3.4.12.10 Set designation of user field 3 'DL 10'

Sets the designation of the third user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 10
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Userfield new 3

Response:

Type	Value
Identifier	DL 10
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 10|00|02|03|Userfield new 3|7E<0A>

→ |DL 10|00|10|03||1D<0A>

3.4.12.11 Read content of user field 3 'DL 11'

Reads out the content of the third user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 11
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 11
Transfer flags	00
Status flags	10
Data-type flags	03
Data	EMCO TEST

Example:

← |DL 11|00|02|03||1F<0A>

→ |DL 11|00|10|03|EMCO TEST|A2<0A>

3.4.12.12 Set content of user field 3 'DL 12'

Sets the content of the third user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 12
Transfer flags	00
Status flags	02
Data-type flags	03
Data	EMCO TEST new 3

Response:

Type	Value
Identifier	DL 12
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 12|00|02|03|EMCO TEST new 3|61<0A>

→ |DL 12|00|10|03||1F<0A>

3.4.12.13 Read designation of user field 4 'DL 13'

Reads out the designation of the fourth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 13
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 13
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Userfield 4

Example:

← |DL 13|00|02|03||21<0A>

→ |DL 13|00|10|03|Userfield 4|17<0A>

3.4.12.14 Set designation of user field 4 'DL 14'

Sets the designation of the fourth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 14
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Userfield new 4

Response:

Type	Value
Identifier	DL 14
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 14|00|02|03|Userfield new 4|83<0A>

→ |DL 14|00|10|03||21<0A>

3.4.12.15 Read content of user field 4 'DL 15'

Reads out the content of the fourth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 15
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 15
Transfer flags	00
Status flags	10
Data-type flags	03
Data	EMCO TEST

Example:

← |DL 15|00|02|03||23<0A>

→ |DL 15|00|10|03|EMCO TEST|A6<0A>

3.4.12.16 Set content of user field 4 'DL 16'

Sets the content of the fourth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 16
Transfer flags	00
Status flags	02
Data-type flags	03
Data	EMCO TEST new 4

Response:

Type	Value
Identifier	DL 16
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 16|00|02|03|EMCO TEST new 4|66<0A>

→ |DL 16|00|10|03||23<0A>

3.4.12.17 Read designation of user field 5 'DL 17'

Reads out the designation of the fifth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 17
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 17
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Userfield 5

Example:

← |DL 17|00|02|03||25<0A>

→ |DL 17|00|10|03|Userfield 5|1C<0A>

3.4.12.18 Set designation of user field 5 'DL 18'

Sets the designation of the fifth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 18
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Userfield new 5

Response:

Type	Value
Identifier	DL 18
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 18|00|02|03|Userfield new 5|88<0A>

→ |DL 18|00|10|03||25<0A>

3.4.12.19 Read content of user field 5 'DL 19'

Reads out the content of the fifth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 19
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 19
Transfer flags	00
Status flags	10
Data-type flags	03
Data	EMCO TEST

Example:

← |DL 19|00|02|03||27<0A>

→ |DL 19|00|10|03|EMCO TEST|AA<0A>

3.4.12.20 Set content of user field 5 'DL 20'

Sets the content of the fifth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 20
Transfer flags	00
Status flags	02
Data-type flags	03
Data	EMCO TEST new 5

Response:

Type	Value
Identifier	DL 20
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 20|00|02|03|EMCO TEST new 5|62<0A>

→ |DL 20|00|10|03||1E<0A>

3.4.12.21 Read designation of user field 6 'DL 21'

Reads out the designation of the sixth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 21
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 21
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Userfield 6

Example:

← |DL 21|00|02|03||20<0A>

→ |DL 21|00|10|03|Userfield 6|18<0A>

3.4.12.22 Set designation of user field 6 'DL 22'

Sets the designation of the sixth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 22
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Userfield new 6

Response:

Type	Value
Identifier	DL 22
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 22|00|02|03|Userfield new 6|84<0A>

→ |DL 22|00|10|03||20<0A>

3.4.12.23 Read content of user field 6 'DL 23'

Reads out the content of the sixth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 23
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 23
Transfer flags	00
Status flags	10
Data-type flags	03
Data	EMCO TEST

Example:

← |DL 23|00|02|03||22<0A>

→ |DL 23|00|10|03|EMCO TEST|A5<0A>

3.4.12.24 Set content of user field 6 'DL 24'

Sets the content of the sixth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 24
Transfer flags	00
Status flags	02
Data-type flags	03
Data	EMCO TEST new 6

Response:

Type	Value
Identifier	DL 24
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 24|00|02|03|EMCO TEST new 6|67<0A>

→ |DL 24|00|10|03||22<0A>

3.4.12.25 Read designation of user field 7 'DL 25'

Reads out the designation of the seventh user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 25
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 25
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Userfield 7

Example:

← |DL 25|00|02|03||24<0A>

→ |DL 25|00|10|03|Userfield 7|1D<0A>

3.4.12.26 Set designation of user field 7 'DL 26'

Sets the designation of the seventh user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 26
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Userfield new 7

Response:

Type	Value
Identifier	DL 26
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 26|00|02|03|Userfield new 7|89<0A>

→ |DL 26|00|10|03||24<0A>

3.4.12.27 Read content of user field 7 'DL 27'

Reads out the content of the seventh user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 27
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 27
Transfer flags	00
Status flags	10
Data-type flags	03
Data	EMCO TEST

Example:

← |DL 27|00|02|03||26<0A>

→ |DL 27|00|10|03|EMCO TEST|A9<0A>

3.4.12.28 Set content of user field 7 'DL 28'

Sets the content of the seventh user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 28
Transfer flags	00
Status flags	02
Data-type flags	03
Data	EMCO TEST new 7

Response:

Type	Value
Identifier	DL 28
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 28|00|02|03|EMCO TEST new 7|6C<0A>

→ |DL 28|00|10|03||26<0A>

3.4.12.29 Read designation of user field 8 'DL 29'

Reads out the designation of the eighth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 29
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 29
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Userfield 8

Example:

← |DL 29|00|02|03||28<0A>

→ |DL 29|00|10|03|Userfield 8|22<0A>

3.4.12.30 Set designation of user field 8 'DL 30'

Sets the designation of the eighth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 30
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Userfield new 8

Response:

Type	Value
Identifier	DL 30
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 30|00|02|03|Userfield new 8|85<0A>

→ |DL 30|00|10|03||1F<0A>

3.4.12.31 Read content of user field 8 'DL 31'

Reads out the content of the eighth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 31
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 031
Transfer flags	00
Status flags	10
Data-type flags	03
Data	EMCO TEST

Example:

← |DL 31|00|02|03||21<0A>

→ |DL 31|00|10|03|EMCO TEST|A4<0A>

3.4.12.32 Set content of user field 8 'DL 32'

Sets the content of the eighth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 32
Transfer flags	00
Status flags	02
Data-type flags	03
Data	EMCO TEST new 8

Response:

Type	Value
Identifier	DL 32
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 32|00|02|03|EMCO TEST new 8|68<0A>

→ |DL 32|00|10|03||21<0A>

3.4.12.33 Read designation of user field 9 'DL 33'

Reads out the designation of the ninth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 33
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 33
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Userfield 9

Example:

← |DL 33|00|02|03||23<0A>

→ |DL 33|00|10|03|Userfield 9|1E<0A>

3.4.12.34 Set designation of user field 9 'DL 34'

Sets the designation of the ninth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 34
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Userfield new 9

Response:

Type	Value
Identifier	DL 34
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 34|00|02|03|Userfield new 9|8A<0A>

→ |DL 34|00|10|03||23<0A>

3.4.12.35 Read content of user field 9 'DL 35'

Reads out the content of the ninth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 35
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 35
Transfer flags	00
Status flags	10
Data-type flags	03
Data	EMCO TEST

Example:

← |DL 35|00|02|03||25<0A>

→ |DL 35|00|10|03|EMCO TEST|A8<0A>

3.4.12.36 Set content of user field 9 'DL 36'

Sets the content of the ninth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 36
Transfer flags	00
Status flags	02
Data-type flags	03
Data	EMCO TEST new 2

Response:

Type	Value
Identifier	DL 36
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 36|00|02|03|EMCO TEST new 9|6D<0A>

→ |DL 36|00|10|03||25<0A>

3.4.12.37 Read designation of user field 10 'DL 37'

Reads out the designation of the tenth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 37
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 37
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Userfield 10

Example:

← |DL 37|00|02|03||27<0A>

→ |DL 37|00|10|03|Userfield 10|4A<0A>

3.4.12.38 Set designation of user field 10 'DL 38'

Sets the designation of the tenth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 38
Transfer flags	00
Status flags	02
Data-type flags	03
Data	Userfield new 10

Response:

Type	Value
Identifier	DL 38
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 38|00|02|03|Userfield new 10|B6<0A>

→ |DL 38|00|10|03||27<0A>

3.4.12.39 Read content of user field 10 'DL 39'

Reads out the content of the tenth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 39
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	DL 39
Transfer flags	00
Status flags	10
Data-type flags	03
Data	EMCO TEST

Example:

← |DL 39|00|02|03||29<0A>

→ |DL 39|00|10|03|EMCO TEST|AC<0A>

3.4.12.40 Set content of user field 10 'DL 40'

Sets the content of the tenth user field.

Command type: Synchronous

Command example:

Type	Value
Identifier	DL 40
Transfer flags	00
Status flags	02
Data-type flags	03
Data	EMCO TEST new 10

Response:

Type	Value
Identifier	DL 40
Transfer flags	00
Status flags	10
Data-type flags	03
Data	

Example:

← |DL 40|00|02|03|EMCO TEST new 10|90<0A>

→ |DL 40|00|10|03||20<0A>

3.4.13 Zoom level 'DMXXX'

Subgroup "M" contains settings for the zoom level.

3.4.13.1 Read all zoom levels 'DM 01'

Reads out all the configurable zoom levels.

Command type: Synchronous

Command example:

Type	Value
Identifier	DM 01
Transfer flags	00
Status flags	02
Data-type flags	10
Data	

Response:

Type	Value
Identifier	DM 01
Transfer flags	00
Status flags	10
Data-type flags	10
Data 1	1
Data N	...

Possible values:

[Transfer values](#) can be found in section 3.4.13.4

Example:

← |DM 01|00|02|10||1D<0A>

→ |DM 01|00|10|10|1|2|FB<0A>

3.4.13.2 Read zoom level 'DM 03'

Reads out the currently selected zoom level.

Command type: Synchronous

Command example:

Type	Value
Identifier	DM 03
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	DM 03
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible values:

[Transfer values](#) can be found in section 3.4.13.4

Example:

← |DM 03|00|02|01||1F<0A>

→ |DM 03|00|10|01|1|4F<0A>

3.4.13.3 Set zoom level 'DM 04'

Sets the selected zoom level in the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	DM 04
Transfer flags	00
Status flags	02
Data-type flags	01
Data (test template name)	2

Response:

Type	Value
Identifier	DM 04
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible values:

[Transfer values](#) can be found in section 3.4.13.4

Example:

← |DM 04|00|02|01|2|52<0A>

→ |DM 04|00|10|01||1F<0A>

3.4.13.4 Transfer values

Here is a list of all transferrable values.

Possible zoom level values:

Name	Value
Level 1	1
Level 2	2
Level 3	3
Level 4	4
Level 5	5
Level 6	6
Level 7	7
Level 8	8
Level 9	9
Level 10	10
Level 11	11
Level 12	12
Level 13	13
Level 14	14
Level 15	15

3.5 Measurement 'EXXX'

Group "E" contains functions for the measurement.

3.5.1 DuraScan 'EAXX'

Subgroup "A" is specifically for DuraScan devices.

3.5.1.1 Start measurement 'EA 01'

Starts the measurement process. The measurement process is started asynchronously; a status message for the successful start and reports on progress, if active, are sent until the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	EA 01
Transfer flags	05
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	EA 01
Transfer flags	05
Status flags	04
Data-type flags	03
Data	

Report: *(if active)*

Type	Value
Identifier	EA 01
Transfer flags	05
Status flags	06
Data-type flags	03
Data	Main load achieved...

Complete:

Type	Value
------	-------

Identifier	EA 01
Transfer flags	05
Status flags	10
Data-type flags	03
Data	

Example:

← |EA 01|05|02|03||18<0A>
→ |EA 01|05|04|03||1B<0A>
→ |EA 01|05|06|03|Mainload achieved.|DB<0A>
→ |EA 01|05|10|03||18<0A>

3.5.1.2 Stop measurement 'EA 02'

Stops the measurement process.

Command type: Synchronous

Command example:

Type	Value
Identifier	EA 02
Transfer flags	00
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	EA 02
Transfer flags	00
Status flags	10
Data-type flags	00
Data	

Example:

← |EA 02|00|02|00||12<0A>

→ |EA 02|00|10|00||11<0A>

3.5.1.3 Measurement quick start 'EA 03'

Stops the measurement process.

Command type: Synchronous

Command example:

Type	Value
Identifier	EA 03
Transfer flags	05
Status flags	02
Data-type flags	23
Data (test procedure)	1
Data (test method)	12
Data (lens)	21
Data (zoom level)	1
Data (circular light) (optional)	(leave blank if circular light is not possible with this configuration)
Data (conversion) (optional)	1
Data (conversion table) (optional)	1
Data (conversion material) (optional)	1
Data (conversion method) (optional)	36
Data (limits) (optional)	1
Data (max. limit) (optional)	900 (value)
Data (min. limit) (optional)	100 (value)
Data (component correction) (optional)	1
Data (component correction shape) (optional)	2
Data (component correction curvature) (optional)	2
Data (component correction angle) (optional)	0
Data (component correction diameter) (optional)	90 (value)
Data (message) (optional)	

Response:

Type	Value
Identifier	EA 01
Transfer flags	05
Status flags	04
Data-type flags	23
Data	

Report: *(if active)*

Type	Value
Identifier	EA 01
Transfer flags	05
Status flags	06
Data-type flags	23
Data	Main load achieved...

Complete:

Type	Value
Identifier	EA 01
Transfer flags	05
Status flags	10
Data-type flags	23
Data	

Possible test procedure values:

[Transfer values](#) can be found in section 3.4.5.5

Possible test method values:

[Transfer values](#) can be found in section 3.4.8.4

Possible lens values:

[Transfer values](#) can be found in section 3.4.9.3

Possible zoom level values:

[Transfer values](#) can be found in section 3.4.13.4

Possible circular light values:

Name	Value
False	0
True	1

Possible conversion values:

[Transfer values](#) can be found in section 3.4.3.9

Possible limit values:

Name	Value
False	0
True	1

Possible component correction values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |EA 03|05|10|23|1|12|21|1|||1|1|36|1|900|300|1|2|2|0|90||D6<0A>

→ |EA 03|05|04|23||1F<0A>

→ |EA 03|05|06|23|1|12|21|1|||1|1|36|1|900|300|1|2|2|0|90||DB<0A>

→ |EA 03|05|10|23||1C<0A>

3.5.1.4 Read process step status during measurement

'EA 05'

Reads out the status during measurement as to whether the process steps should be transferred as a report. Parameter transfer takes place based on a Boolean true or false value. The default value is true.

Command type: Synchronous

Command example:

Type	Value
Identifier	EA 05
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	EA 05
Transfer flags	00
Status flags	10
Data-type flags	04
Data	True

Possible values:

Name	Value
False	0
True	1

Example:

← |EA 05|00|02|04||19<0A>

→ |EA 05|00|10|04|1|49<0A>

3.5.1.5 Set process step status during measurement 'EA 06'

Sets the status of process steps during measurement to active or inactive.

Command type: Synchronous

Command example:

Type	Value
Identifier	EA 06
Transfer flags	00
Status flags	02
Data-type flags	04
Data	0

Response:

Type	Value
Identifier	EA 06
Transfer flags	00
Status flags	10
Data-type flags	04
Data	

Possible values:

Name	Value
False	0
True	1

Example:

← |EA 06|00|02|04|1|4B<0A>

→ |EA 06|00|10|04||19<0A>

3.5.2 DuraVision & DuraPro 'EBXXX'

Subgroup "B" is specifically for DuraVision and DuraPro devices.

3.5.2.1 Start measurement 'EB 01'

Starts the measurement process. The measurement process is started asynchronously; a status message for the successful start and reports on progress, if active, are sent until the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	EB 01
Transfer flags	05
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	EB 01
Transfer flags	05
Status flags	04
Data-type flags	03
Data	

Report: (*if active*)

Type	Value
Identifier	EB 01
Transfer flags	05
Status flags	06
Data-type flags	03
Data	Main load achieved.

Complete:

Type	Value
Identifier	EB 01
Transfer flags	05
Status flags	10
Data-type flags	03
Data	

Example:

← |EB 01|05|02|03||19<0A>
→ |EB 01|05|04|03||1B<0A>
→ |EB 01|05|06|03|Mainload achieved.|DB<0A>
→ |EB 01|05|10|03||18<0A>

3.5.2.2 Stop measurement 'EB 02'

Stops the measurement process.

Command type: Synchronous

Command example:

Type	Value
Identifier	EB 02
Transfer flags	00
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	EB 02
Transfer flags	00
Status flags	10
Data-type flags	00
Data	

Example:

← |EB 02|00|02|00||13<0A>

→ |EB 02|00|10|00||12<0A>

3.5.2.3 Measurement quick start 'EB 03'

Starts the measurement process with simultaneous measurement configuration. The measurement process is started asynchronously; a status message for the successful start and reports on progress, if active, are sent until the process is complete.

Command type: Synchronous

Command example:

Type	Value
Identifier	EB 03
Transfer flags	05
Status flags	02
Data-type flags	23
Data (test procedure)	1
Data (test method)	12
Data (lens)	21
Data (zoom level)	1
Data (circular light) (optional)	(leave blank if circular light is not possible with this configuration)
Data (conversion) (optional)	1
Data (conversion table) (optional)	1
Data (conversion material) (optional)	1
Data (conversion method) (optional)	36
Data (limits) (optional)	1
Data (max. limit) (optional)	900 (value)
Data (min. limit) (optional)	100 (value)
Data (component correction) (optional)	1
Data (component correction shape) (optional)	2
Data (component correction curvature) (optional)	2
Data (component correction angle) (optional)	0
Data (component correction diameter) (optional)	90 (value)
Data (message) (optional)	

Response:

Type	Value
Identifier	EB 01
Transfer flags	05
Status flags	04
Data-type flags	23
Data	

Report: *(if active)*

Type	Value
Identifier	EB 01
Transfer flags	05
Status flags	06
Data-type flags	23
Data	Main load achieved...

Complete:

Type	Value
Identifier	EB 01
Transfer flags	05
Status flags	10
Data-type flags	23
Data	

Possible test procedure values:

[Transfer values](#) can be found in section 3.4.5.5

Possible test method values:

[Transfer values](#) can be found in section 3.4.8.4

Possible lens values:

[Transfer values](#) can be found in section 3.4.9.3

Possible zoom level values:

[Transfer values](#) can be found in section 3.4.13.4

Possible circular light values:

Name	Value
False	0
True	1

Possible conversion values:

[Transfer values](#) can be found in section 3.4.3.9

Possible limit values:

Name	Value
False	0
True	1

Possible component correction values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |EB 03|05|10|23|1|12|21|1|||1|1|36|1|900|300|1|2|2|0|90||D7<0A>

→ |EB 03|05|04|23||20<0A>

→ |EB 03|05|06|23|1|12|21|1|||1|1|36|1|900|300|1|2|2|0|90|Main load
achieved.|9A<0A>

→ |EB 03|05|10|23||1D<0A>

3.5.2.4 Read process step status during measurement

'EB 05'

Reads out the status during measurement as to whether the process steps should be transferred as a report. Parameter transfer takes place based on a Boolean true or false value. The default value is true.

Command type: Synchronous

Command example:

Type	Value
Identifier	EB 05
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	EB 05
Transfer flags	00
Status flags	10
Data-type flags	04
Data	1

Possible values:

Name	Value
False	0
True	1

Example:

← |EB 05|00|02|04||1A<0A>

→ |EB 05|00|10|04|1|4A<0A>

3.5.2.5 Set process step status during measurement 'EB 06'

Sets the status of process steps during measurement to active or inactive.

Command type: Synchronous

Command example:

Type	Value
Identifier	EB 06
Transfer flags	00
Status flags	02
Data-type flags	04
Data	1

Response:

Type	Value
Identifier	EB 06
Transfer flags	00
Status flags	10
Data-type flags	04
Data	

Possible values:

Name	Value
False	0
True	1

Example:

← |EB 06|00|02|04|1|4C<0A>

→ |EB 06|00|10|04||1A<0A>

3.6 Movement 'FXXXX'

Group "F" contains functions pertaining to movement.

3.6.1 DuraScan 'FAXXX'

Subgroup "A" is specifically for DuraScan devices.

3.6.1.1 Z-axis 'FAAXX'

Subgroup "A" contains settings for the Z-axis.

3.6.1.1.1 Select relative distance 'FAA01'

Travel in the Z-axis to the transferred relative distance value. The relative distance is regarded as the current position + or – the transferred value.

Command type: Asynchronous

Command example:

Type	Value
Identifier	FAA01
Transfer flags	05
Status flags	02
Data-type flags	01
Data	5000 (value)

Response:

Type	Value
Identifier	FAA01
Transfer flags	05
Status flags	04
Data-type flags	01
Data	

Complete:

Type	Value
Identifier	FAA01
Transfer flags	05
Status flags	10
Data-type flags	01
Data	

Example:

← |FAA01|05|02|01|5000|F9<0A>

→ |FAA01|05|02|01|5000|F9<0A>

→ |FAA01|05|10|01||38<0A>

3.6.1.1.2 Read position 'FAA03'

Reads out the current position of the Z-axis.

Command type: Synchronous

Command example:

Type	Value
Identifier	FAA03
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	FAA03
Transfer flags	00
Status flags	10
Data-type flags	01
Data	31446555

Example:

← |FAA03|00|02|01||36<0A>

→ |FAA03|00|10|01|-31446555|03<0A>

3.6.1.2 Revolver 'FABXX'

Subgroup "A" contains functions pertaining to the revolver.

3.6.1.2.1 Reference 'FAB01'

References the revolver. This command is executed asynchronously and sends one status message about successful start and one message when the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	FAB01
Transfer flags	05
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	FAB01
Transfer flags	05
Status flags	04
Data-type flags	00
Data	

Complete:

Type	Value
Identifier	FAB01
Transfer flags	05
Status flags	10
Data-type flags	00
Data	

Example:

← |FAB01|05|02|00||04<0A>

→ |FAB01|05|02|00||04<0A>

→ |FAB01|05|10|00||38<0A>

3.6.1.2.2 Select tool 'FAB04'

Turns the revolver to the transferred tool. This command is executed asynchronously and sends one status message when the process has started successfully and one message when the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	FAB04
Transfer flags	05
Status flags	02
Data-type flags	01
Data	1

Response:

Type	Value
Identifier	FAB04
Transfer flags	05
Status flags	04
Data-type flags	01
Data	

Complete:

Type	Value
Identifier	FAB04
Transfer flags	05
Status flags	10
Data-type flags	01
Data	

Example:

← |FAB04|05|02|01|1|37<0A>

→ |FAB04|05|04|01||3F<0A>

→ |FAB04|05|10|01||34<0A>

3.6.2 DuraVision & DuraPro 'FBXXX'

Subgroup "B" is specifically for DuraVision and DuraPro devices.

3.6.2.1 Measurement system 'FBAXX'

Subgroup "A" contains functions pertaining to the measurement system.

3.6.2.1.1 Reference 'FBA01'

References the measurement system. This command is executed asynchronously and sends one status message about successful start and one message when the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	FBA01
Transfer flags	05
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	FBA01
Transfer flags	05
Status flags	04
Data-type flags	00
Data	

Complete:

Type	Value
Identifier	FBA01
Transfer flags	05
Status flags	10
Data-type flags	00
Data	

Example:

← |FBA01|05|02|00||39<0A>

→ |FBA01|05|04|00||3B<0A>

→ |FBA01|05|10|00||38<0A>

3.6.2.2 Revolver 'FBBXX'

Subgroup "A" contains settings for the Z-axis.

3.6.2.2.1 Reference 'FBB01'

References the revolver. This command is executed asynchronously and sends one status message about successful start and one message when the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	FBB01
Transfer flags	05
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	FBB01
Transfer flags	05
Status flags	04
Data-type flags	00
Data	

Complete:

Type	Value
Identifier	FBB01
Transfer flags	05
Status flags	10
Data-type flags	00
Data	

Example:

← |FBB01|05|02|00||3A<0A>

→ |FBB01|05|04|00||3C<0A>

→ |FBB01|05|10|00||39<0A>

3.6.2.2.2 Control revolver 'FBB04'

Turns the revolver to the transferred tool. This command is executed asynchronously and sends one status message when the process has started successfully and one message when the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	FBB04
Transfer flags	05
Status flags	02
Data-type flags	01
Data	1

Response:

Type	Value
Identifier	FBB04
Transfer flags	05
Status flags	04
Data-type flags	01
Data	

Complete:

Type	Value
Identifier	FBB04
Transfer flags	05
Status flags	10
Data-type flags	01
Data	

Possible values:

[Transfer values](#) can be found in section 3.1.5.3

Example:

← |FBB04|05|02|01|1|6F<0A>

➔ |FBB04|05|04|01||40<0A>

➔ |FBB04|05|10|01||3D<0A>

3.6.2.3 Swivel body 'FBCXX'

Subgroup "C" contains settings for the swivel body.

3.6.2.3.1 Reference 'FBC01'

References the swivel body. This command is executed asynchronously and sends one status message about successful start and one message when the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	FBC01
Transfer flags	05
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	FBC01
Transfer flags	05
Status flags	04
Data-type flags	00
Data	

Complete:

Type	Value
Identifier	FBC01
Transfer flags	05
Status flags	10
Data-type flags	00
Data	

Example:

← |FBC01|05|02|00||3D<0A>

→ |FBC01|05|02|00||3D<0A>

→ |FBC01|05|10|00||3C<0A>

3.6.2.3.2 Control swivel body 'FBC04'

Indicates to the ecos Workflow software that the transferred tool should be swivelled in by the user. This command is executed asynchronously and sends one status message when the process has started successfully and one message when the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	FBC04
Transfer flags	05
Status flags	02
Data-type flags	01
Data	1

Response:

Type	Value
Identifier	FBC04
Transfer flags	05
Status flags	04
Data-type flags	01
Data	

Complete:

Type	Value
Identifier	FBC04
Transfer flags	05
Status flags	10
Data-type flags	02
Data	

Example:

← |FBC04|05|02|01|1|70<0A>

→ |FBC04|00|04|01||3C<0A>

→ |FBC04|00|10|01||5A<0A>

3.6.2.4 Zoom lens 'FBDXX'

Subgroup "D" contains settings for the zoom lens.

3.6.2.4.1 Reference 'FBD01'

References the zoom lens. This command is executed asynchronously and sends one status message about successful start and one message when the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	FBD01
Transfer flags	05
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	FBD01
Transfer flags	05
Status flags	04
Data-type flags	00
Data	

Complete:

Type	Value
Identifier	FBD01
Transfer flags	05
Status flags	10
Data-type flags	00
Data	

Example:

← |FBD01|05|02|00||3E<0A>

→ |FBD01|05|04|00||40<0A>

→ |FBD01|05|10|00||3D<0A>

3.6.2.4.2Control zoom lens 'FBD04'

Moves the zoom lens to the transferred zoom level. This command is executed asynchronously and sends one status message when the process has started successfully and one message when the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	FBD04
Transfer flags	05
Status flags	02
Data-type flags	01
Data	8

Response:

Type	Value
Identifier	FBD04
Transfer flags	05
Status flags	04
Data-type flags	01
Data	

Complete:

Type	Value
Identifier	FBD04
Transfer flags	05
Status flags	10
Data-type flags	01
Data	

Example:

← |FBD04|05|02|01|8|79<0A>

→ |FBD04|05|04|01||15<0A>

→ |FBD04|05|10|01||21<0A>

3.6.2.5 Z-axis "FBEXX"

Subgroup "E" contains settings for the Z-axis.

3.6.2.5.1 Release process 'FBE01'

Releases the clamping of the test object. This command is executed asynchronously and sends one status message about successful start and one message when the process is complete.

Command type: Asynchronous

Command example:

Type	Value
Identifier	FBE01
Transfer flags	05
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	FBE01
Transfer flags	05
Status flags	04
Data-type flags	00
Data	

Complete:

Type	Value
Identifier	FBE01
Transfer flags	05
Status flags	10
Data-type flags	00
Data	

Example:

← |FBE01|05|02|00||3D<0A>

→ |FBE01|05|04|00||3F<0A>

→ |FBE01|05|10|00||3C<0A>

3.7 PLC 'GXXXX'

Group "G" contains information about the PLC.

3.7.1 Information 'GAXXX'

Subgroup "A" contains information about the PLC.

3.7.1.1 Total number of all measurements 'GA 01'

Reads out the number of all measurements that have been performed with this device.

Command type: Synchronous

Command example:

Type	Value
Identifier	GA 01
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	GA 01
Transfer flags	00
Status flags	10
Data-type flags	01
Data	3360

Example:

← |GA 01|00|02|01||14<0A>

→ |GA 01|00|10|01|4486|E9<0A>

3.8 Result 'HXXXX'

Group "H" contains information about measurement results.

3.8.1 Specimen 'HAXXX'

Subgroup "A" contains information about the specimens.

3.8.1.1 Load individual specimen 'HA 01'

Loads the measured specimen with all available values.

Command type: Synchronous

Command example:

Type	Value
Identifier	HA 01
Transfer flags	00
Status flags	02
Data-type flags	20
Data	

Response:

Type	Value
Identifier	HA 01
Transfer flags	00
Status flags	02
Data-type flags	20
Data 1 (point ID)	164 (value)
Data 2 (date)	4/23/2013 12:29:37 PM
Data 3 (classification)	ErrorImageAnalysis (value)
Data 4 (test procedure)	3
Data 5 (test method)	36
Data 6 (lens)	17
Data 7 (conversion)	0
Data 8 (conversion table) (optional)	
Data 9 (conversion material) (optional)	
Data 10 (conversion method) (optional)	
Data 11 (conversion value) (optional)	(value)
Data 12 (limits active)	0
Data 13 (maximum limit) (optional)	(value)
Data 14 (minimum limit) (optional)	(value)
Data 15 (geometry correction active)	False
Data 16 (geometry correction diameter) (optional)	

Data 17 (geometry correction shape) (optional)	
Data 18 (geometry correction curvature) (optional)	
Data 19 (geometry correction angle) (optional)	
Data 20 (diagonal 1) (optional)	0 (value)
Data 21 (diagonal 2) (optional)	0 (value)
Data 22 (diagonal) (optional)	0 (value)
Data 23 (hardness value) (optional)	0 (value)
Data 24 (focus position) (optional)	0 (value)
Data 25 (zoom level)	2
Data 26 (circular light)	0
Data 27 (additional test point designation 1)	(value)
Data 28 (additional test point designation 2)	(value)
Data 29 (additional test point designation 3)	(value)

Possible test procedure values:

[Transfer values](#) can be found in section 3.4.5.5

Possible test method values:

[Transfer values](#) can be found in section 3.4.8.4

Possible lens values:

[Transfer values](#) can be found in section 3.4.9.3

Possible zoom level values:

[Transfer values](#) can be found in section 3.4.13.4

Possible circular light values:

Name	Value
False	0
True	1

Possible conversion values:

[Transfer values](#) can be found in section 3.4.3.9

Possible limit values:

Name	Value
False	0
True	1

Possible component correction values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |HA 01|00|02|20||16<0A>

→ |HA 01|00|10|20|164|4/23/2013 12:29:37

PM|ErrorImageAnalysis|3|36|17|0||||0|||0||||0|0|

0|0|0|2|0||||9D<0A>

3.8.2 Measurement image 'HBXXX'

Group "B" contains information about the measurement image.

3.8.2.1 Load standard image 'HB 01'

Loads the measurement image without evaluation. It is transferred as a Base64 string.

Command type: Synchronous

Command example:

Type	Value
Identifier	HB 01
Transfer flags	00
Status flags	02
Data-type flags	09
Data	

Response:

Type	Value
Identifier	HB 01
Transfer flags	00
Status flags	10
Data-type flags	09
Data (Base64-string image)	/9j/4AAQSkZJRgABAQEAYABgAAD/2wBD...

Example:

← |HB 01|00|02|09||17<0A>

→ |HB 01|00|10|09|/9j/4AAQSkZJRgABAQEAYABgAAD/2wBD...|7E<0A>

3.8.2.2 Read standard image path 'HB 03'

Reads out the file path where the measurement image without evaluation was stored by the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	HB 03
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	HB 03
Transfer flags	00
Status flags	10
Data-type flags	03
Data	C:\Data\Images\\24_4_2013_13_48_9_HV 100_Optik...

Example:

← |HB 03|00|02|03||1A<0A>

→ |HB 03|00|10|03|C:\Data\Images\\24_4_2013_13_48_9_HV 100_Optik_20x.jpg|D6<0A>

3.8.2.3 Load result image 'HB 05'

Loads the measurement image with the evaluation. It is transferred as a Base64 string.

Command type: Synchronous

Command example:

Type	Value
Identifier	HB 05
Transfer flags	00
Status flags	02
Data-type flags	09
Data	

Response:

Type	Value
Identifier	HB 05
Transfer flags	00
Status flags	10
Data-type flags	09
Data (Base64-string image)	/9j/4AAQSkZJRgABAQEAYABgA...

Example:

← |HB 05|00|02|09||1B<0A>

→ |HB 05|00|10|09|/9j/4AAQSkZJRgABAQEAYABgA... |03<0A>

3.8.2.4 Read result image path 'HB 07'

Reads out the file path where the measurement image with evaluation was stored by the ecos Workflow software.

Command type: Synchronous

Command example:

Type	Value
Identifier	HB 07
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	HB 07
Transfer flags	00
Status flags	10
Data-type flags	03
Data	C:\Data\Images\\24_4_2013_13_48_10_HV...

Example:

← |HB 07|00|02|03||1E<0A>

→ |HB 07|00|10|03|C:\Data\Images\\24_4_2013_13_48_10_HV
100_Optik_20x_Result.jpg
|E0<0A>

3.8.3 Test point list 'HCXXX'

Subgroup "C" contains functions for the test point list.

3.8.3.1 Delete last test point 'HC 02'

Deletes the last test point / specimen from the history.

Command type: Synchronous

Command example:

Type	Value
Identifier	HC 02
Transfer flags	00
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	HC 02
Transfer flags	00
Status flags	10
Data-type flags	00
Data	

Example:

← |HC 02|00|02|00||17<0A>

→ |HC 02|00|10|00||16<0A>

3.8.3.2 Delete all test points 'HC 04'

Deletes all test points / specimens from the history.

Command type: Synchronous

Command example:

Type	Value
Identifier	HC 04
Transfer flags	00
Status flags	02
Data-type flags	00
Data	

Response:

Type	Value
Identifier	HC 04
Transfer flags	00
Status flags	10
Data-type flags	00
Data	

Example:

← |HC 04|00|02|00||19<0A>

→ |HC 04|00|10|00||18<0A>

3.8.4 Test point 'HDXXX'

Subgroup "D" contains information about the last test point.

3.8.4.1 Read ID 'HD 01'

Reads out the ID of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 01
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	HD 01
Transfer flags	00
Status flags	10
Data-type flags	01
Data	2

Example:

← |HD 01|00|02|01||18<0A>

→ |HD 01|00|10|01|2|49<0A>

3.8.4.2 Read date & time 'HD 03'

Reads out the date and time of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 03
Transfer flags	00
Status flags	02
Data-type flags	08
Data	

Response:

Type	Value
Identifier	HD 03
Transfer flags	00
Status flags	10
Data-type flags	08
Data	1/10/2013 11:37:20 AM

Example:

← |HD 03|00|02|08||21<0A>

→ |HD 03|00|10|08|4/24/2013 12:48:10 PM|5F<0A>

3.8.4.3 Read classification 'HD 05'

Reads out the classification of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 05
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	HD 05
Transfer flags	00
Status flags	10
Data-type flags	03
Data	ErrorImageAnalysis,WarningValueToLow

Example:

← |HD 05|00|02|03||1E<0A>

→ |HD 05|00|10|03|ErrorImageAnalysis,WarningValueToLow|42<0A>

3.8.4.4 Read test procedure 'HD 07'

Reads out the test procedure of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 07
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	HD 07
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible values:

[Transfer values](#) can be found in section 3.4.5.5

Example:

← |HD 07|00|02|01||1E<0A>

→ |HD 07|00|10|01|1|4E<0A>

3.8.4.5 Read test method 'HD 09'

Reads out the test method of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 09
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	HD 09
Transfer flags	00
Status flags	10
Data-type flags	01
Data	

Possible values:

[Transfer values](#) can be found in section 3.4.8.4

Example:

← |HD 09|00|02|01||20<0A>

→ |HD 09|00|10|01|17|87<0A>

3.8.4.6 Read lens 'HD 11'

Reads out the lens of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 11
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	HD 11
Transfer flags	00
Status flags	10
Data-type flags	01
Data	17

Possible values:

[Transfer values](#) can be found in section 3.4.9.3

Example:

← |HD 11|00|02|01||19<0A>

→ |HD 11|00|10|01|17|80<0A>

3.8.4.7 Read conversion status 'HD 13'

Reads out the conversion status of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 13
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	HD 13
Transfer flags	00
Status flags	10
Data-type flags	04
Data	1

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |HD 13|00|02|04||1E<0A>

→ |HD 13|00|10|04|1|4E<0A>

3.8.4.8 Read conversion table 'HD 15'

Reads out the conversion table of the last test point. If conversion is not active, the value is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 15
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	HD 15
Transfer flags	00
Status flags	10
Data-type flags	01
Data	2

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |HD 15|00|02|01||1D<0A>

→ |HD 15|00|10|01|2|4E<0A>

3.8.4.9 Read conversion material 'HD 17'

Reads out the conversion material of the last test point. If conversion is not active, the value is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 17
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	HD 17
Transfer flags	00
Status flags	10
Data-type flags	01
Data	4

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |HD 17|00|02|01||1F<0A>

→ |HD 17|00|10|01|4|52<0A>

3.8.4.10 Read conversion method 'HD 19'

Reads out the conversion method of the last test point. If conversion is not active, the value is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 19
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	HD 19
Transfer flags	00
Status flags	10
Data-type flags	01
Data	12

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |HD 19|00|02|01||21<0A>

→ |HD 19|00|10|01|12|83<0A>

3.8.4.11 Read conversion value 'HD 21'

Reads out the conversion value of the last test point. If conversion is not active, the value is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 21
Transfer flags	00
Status flags	02
Data-type flags	02
Data	

Response:

Type	Value
Identifier	HD 21
Transfer flags	00
Status flags	10
Data-type flags	02
Data	80.86

Example:

← |HD 21|00|02|02||1B<0A>

→ |HD 21|00|10|02|80.86|1E<0A>

3.8.4.12 Read hardness limit status 'HD 23'

Reads out the status of the limits of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 23
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	HD 23
Transfer flags	00
Status flags	10
Data-type flags	04
Data	1

Possible values:

Name	Value
False	0
True	1

Example:

← |HD 23|00|02|04||1F<0A>

→ |HD 23|00|10|04|1|4F<0A>

3.8.4.13 Read min limit 'HD 25'

Reads out the minimum limit of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 25
Transfer flags	00
Status flags	02
Data-type flags	02
Data	

Response:

Type	Value
Identifier	HD 25
Transfer flags	00
Status flags	10
Data-type flags	02
Data	100 (value)

Example:

← |HD 25|00|02|02||1F<0A>

→ |HD 25|00|10|02|100|AF<0A>

3.8.4.14 Read max limit 'HD 27'

Reads out the maximum limit of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 27
Transfer flags	00
Status flags	02
Data-type flags	02
Data	

Response:

Type	Value
Identifier	HD 27
Transfer flags	00
Status flags	10
Data-type flags	02
Data	800 (value)

Example:

← |HD 27|00|02|02||21<0A>

→ |HD 27|00|10|02|800|B8<0A>

3.8.4.15 Read geometry correction status 'HD 29'

Reads out the geometry correction status of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 29
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	HD 29
Transfer flags	00
Status flags	10
Data-type flags	04
Data	1

Possible values:

Name	Value
False	0
True	1

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |HD 29|00|02|04||25<0A>

→ |HD 29|00|10|04|1|55<0A>

3.8.4.16 Read geometry correction diameter 'HD 31'

Reads out the geometry correction diameter of the last test point. If geometry correction is not active, the value is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 31
Transfer flags	00
Status flags	02
Data-type flags	02
Data	

Response:

Type	Value
Identifier	HD 31
Transfer flags	00
Status flags	10
Data-type flags	02
Data	9.5 (value)

Example:

← |HD 31|00|02|02||1C<0A>

→ |HD 31|00|10|02|9.5|B7<0A>

3.8.4.17 Read geometry correction shape 'HD 33'

Reads out the geometry correction shape of the last test point. If geometry correction is not active, the value is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 33
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	HD 33
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |HD 33|00|02|01||1D<0A>

→ |HD 33|00|10|01|1|4D<0A>

3.8.4.18 Read geometry correction curvature 'HD 35'

Reads out the geometry correction curvature of the last test point. If geometry correction is not active, the value is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 35
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	HD 35
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |HD 35|00|02|01||1F<0A>

→ |HD 35|00|10|01|1|4F<0A>

3.8.4.19 Read geometry correction angle 'HD 37'

Reads out the geometry correction angle of the last test point. If geometry correction is not active, the value is empty.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 37
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	HD 37
Transfer flags	00
Status flags	10
Data-type flags	01
Data	45

Possible values:

[Transfer values](#) can be found in section 3.4.4.8

Example:

← |HD 37|00|02|01||21<0A>

→ |HD 37|00|10|01|45|89<0A>

3.8.4.20 Read diagonal 1 'HD 39'

Reads out diagonal 1 of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 39
Transfer flags	00
Status flags	02
Data-type flags	02
Data	

Response:

Type	Value
Identifier	HD 39
Transfer flags	00
Status flags	10
Data-type flags	02
Data	1.015529411794 (value)

Example:

← |HD 39|00|02|02||24<0A>

→ |HD 39|00|10|02|1.015529411794|F2<0A>

3.8.4.21 Read diagonal 2 'HD 41'

Reads out diagonal 2 of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 41
Transfer flags	00
Status flags	02
Data-type flags	02
Data	

Response:

Type	Value
Identifier	HD 41
Transfer flags	00
Status flags	10
Data-type flags	02
Data	1.015529411794 (value)

Example:

← |HD 41|00|02|02||1D<0A>

→ |HD 41|00|10|02|1.015529411794|EB<0A>

3.8.4.22 Read diagonal 'HD 43'

Reads out the diagonal of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 43
Transfer flags	00
Status flags	02
Data-type flags	02
Data	

Response:

Type	Value
Identifier	HD 43
Transfer flags	00
Status flags	10
Data-type flags	02
Data	1.015529411794 (value)

Example:

← |HD 43|00|02|02||1F<0A>

→ |HD 43|00|10|02|1.015529411794|ED<0A>

3.8.4.23 Read hardness value 'HD 45'

Reads out the hardness value of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 45
Transfer flags	00
Status flags	02
Data-type flags	02
Data	

Response:

Type	Value
Identifier	HD 45
Transfer flags	00
Status flags	10
Data-type flags	02
Data	182 (value)

Example:

← |HD 45|00|02|02||21<0A>

→ |HD 45|00|10|02|182|BB<0A>

3.8.4.24 Read focus position 'HD 47'

Reads out the focus position of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 47
Transfer flags	00
Status flags	02
Data-type flags	02
Data	

Response:

Type	Value
Identifier	HD 47
Transfer flags	00
Status flags	10
Data-type flags	02
Data	0 (value)

Example:

← |HD 47|00|02|02||23<0A>

→ |HD 47|00|10|02|0|52<0A>

3.8.4.25 Read zoom level 'HD 49'

Reads out the zoom level of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 49
Transfer flags	00
Status flags	02
Data-type flags	01
Data	

Response:

Type	Value
Identifier	HD 49
Transfer flags	00
Status flags	10
Data-type flags	01
Data	1

Possible values:

[Transfer values](#) can be found in section 3.4.13.4

Example:

← |HD 49|00|02|01||24<0A>

→ |HD 49|00|10|01|1|54<0A>

3.8.4.26 Read circular light status 'HD 51'

Reads out the circular light status of the last test point.

Command type: Synchronous

Command example:

Type	Value
Identifier	HD 51
Transfer flags	00
Status flags	02
Data-type flags	04
Data	

Response:

Type	Value
Identifier	HD 51
Transfer flags	00
Status flags	10
Data-type flags	04
Data	0

Possible values:

Name	Value
False	0
True	1

Example:

← |HD 51|00|02|04||20<0A>

→ |HD 51|00|10|04|0|4F<0A>

3.8.4.27 Read additional test point designation 1 'HD 53'

Reads out the content of the first additional test point designation for the last test point.

Command type: synchronous

Command example:

Type	Value
Identifier	HD 53
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	HD 53
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Additional information 1

Example:

← |HD 53|00|02|03||21<0A>

→ |HD 53|00|10|03|Additional information 1|7B<0A>

3.8.4.28 Read additional test point designation 2 'HD 55'

Reads out the content of the second additional test point designation for the last test point.

Command type: synchronous

Command example:

Type	Value
Identifier	HD 55
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	HD 55
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Additional information 2

Example:

← |HD 55|00|02|03||23<0A>

→ |HD 55|00|10|03|Additional information 2|7E<0A>

3.8.4.29 Read additional test point designation 3 'HD 57'

Reads out the content of the third additional test point designation for the last test point.

Command type: synchronous

Command example:

Type	Value
Identifier	HD 57
Transfer flags	00
Status flags	02
Data-type flags	03
Data	

Response:

Type	Value
Identifier	HD 57
Transfer flags	00
Status flags	10
Data-type flags	03
Data	Additional information 3

Example:

← |HD 57|00|02|03||25<0A>

→ |HD 57|00|10|03|Additional information 3|81<0A>

3.9 Messages 'IXXXX'

Group "H" contains options for outputting messages.

3.9.1 Information message 'IAXXX'

Subgroup "A" contains options for outputting information messages.

3.9.1.1 Send information message 'IA 01'

Sends an information message to the ecos Workflow software, which will be shown on the display.

Command type: synchronous

Command example:

Type	Value
Identifier	IA 01
Transfer flags	00
Status flags	02
Data-type flags	49
Data 1 (title)	Title
Data 2 (text)	This is an information text.

Response:

Type	Value
Identifier	IA 01
Transfer flags	00
Status flags	10
Data-type flags	49
Data 1 (title)	
Data 2 (text)	

Example:

← |IA 01|00|02|49|Title|This is an information text.|03<0A>

→ |IA 01|00|10|49||21<0A>

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