



DIAX04 Drive With Electric Gear Function

Firmware Version Notes: ELS 06VRS

SYSTEM200

Title DIAX04 Drive With Electric Gear Function

Type of Documentation Firmware Version Notes: ELS 06VRS

Document Typecode DOK-DIAX04-ELS-06VRS**-FV01-EN-P

- Internal File Reference**
- Box 60-06V-EN
 - Based on ELS 06VRS
 - 120-0800-B337-01/EN

Purpose of Documentation This following documentation is a complement to the description of functions DOK-DIAX04-ELS-06VRS**-FK01-EN-P. It describes the difference between DIAX04-ELS-05VRS and DIAX04-ELS-06VRS.

Record of Revisions

Description	Release Date	Notes
DOK-DIAX04-ELS-06VRS**-FV01-EN-P	06.02	First edition

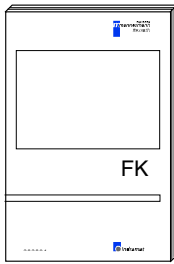
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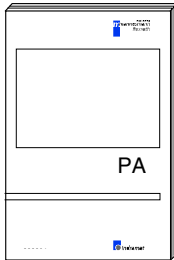
Summary of Documentation - Box



Functional Description:

Description of all implemented Function based on SERCOS-Parameters

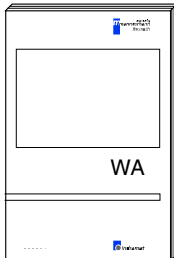
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Parameter Description:

A description of all parameters used in the firmware

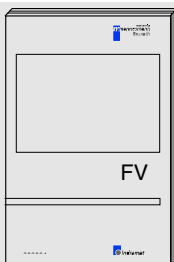
Order designation:
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Troubleshooting Guide:

- Explanation of the diagnostic states
- How to proceed when eliminating faults

Order designation:
DOK-DIAX04-ELS-06VRS**-WA01-EN-P

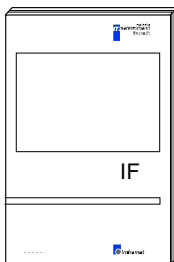


Firmware Version Notes:

Description of new and changed functions in terms of the derivatives:

- FWA-DIAX04-ELS-06VRS-MS

Order designation:
DOK-DIAX04-ELS-06VRS**-FV01-EN-P



Drive Configuration:

- Determining the motor type
- Choosing the motor – motor feedback combination
- Choosing the desired function of the drive control device

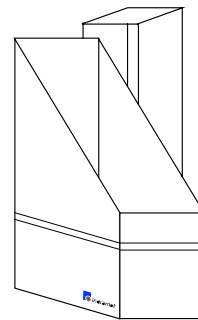
Order designation:
DOK-DIAX04-ELS-06VRS**-IF01-EN-P



CD: DRIVEHELP

Collection of Windows help systems which contain documents on firmware derivatives

Order designation:
DOK-GENEERL-DRIVEHELP**-GExx-MS-D0600



Order designation
DOK-DIAX04-ELS-06VRS**-6001-EN-P

Notes

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Notes

1 General Information

1.1 Product Range

These Firmware Version Notes relate to the product range:

DIAX04 Drive with Electric Gear Function FWA-DIAX04-ELS-06VRS-MS

The following drive controllers can be operated with the software released:

The Firmware Released is Available for the Following Drive Controllers:	HDS02.1	HDS03.1	HDS04.1	HDD02.1
	HDS02.2	HDS03.2	HDS04.2	HDD02.2
	HDS05.2			

1.2 Documentation

The following table contains an overview of the available documentations for the FWA-DIAX04-ELS-06VRS firmware:

Item	Type code	Kind of document	Part number	Document number
1	DOK-DIAX04-ELS-06VRS**-6001-DE-P	Box set	291621	120-0800-B336-01
2	DOK-DIAX04-ELS-06VRS**-FK01-DE-P	Functional Description	291626	120-0800-B339-01
3	DOK-DIAX04-ELS-06VRS**-PA01-DE-P	Parameter Description	291627	120-0800-B340-01
4	DOK-DIAX04-ELS-06VRS**-IF01-DE-P	Drive Configuration	291631	120-0800-B341-01
5	DOK-DIAX04-ELS-06VRS**-WA01-DE-P	Troubleshooting Guide	291625	120-0800-B338-01
6	DOK-DIAX04-ELS-06VRS**-FV01-DE-P	Firmware Version Notes	291622	120-0800-B337-01

Fig. 1-1: Documentation for FWA-DIAX04-ELS-06VRS

Notes

2 FWA-DIAX04-ELS-06VRS-MS Version Notes

2.1 Notes on How to Replace the Firmware

Prior to replacing the firmware, please always observe the following:

- read the entire release documentation
- save the current parameter set

Note: The parameters to be saved are stored in the **S-0-0192** parameter.

- switch the drive controller off and replace the software module
- reload the parameter set
- check the functioning

2.2 Notes on the Release

The **FWA-DIAX04-ELS-06V01** firmware version is the first official edition of version 06. It was released on **2002-07-01**.

The following drive controllers can be operated with the software released:

• HDS 02.1	• HDS 02.2
• HDS 03.1	• HDS 03.2
• HDS 04.1	• HDS 04.2
• HDD 02.1	• HDD 02.2
• HDS 05.2	

2.3 Checksums

Program Flash: 0601 h

Data Flash: 0601 h

Sum: 0C02 h

2.4 New Basic Functions

"B0 Release brake" Command

By starting the **P-0-0542, B100 Command Release motor holding brake** command it is possible for the user to release the motor brake.

Two Additional Velocity Status Bits

Two parameters were created for additional velocity thresholds. They include two bits in the manufacturer class 3 diagnostics that indicate whether the actual velocity is higher than the respective threshold.

2.5 Extended/Modified Functions

Absolute Encoder Evaluation and Monitoring for Two Absolute Measuring Systems

By the implementation of a second absolute encoder buffer it is now possible to operate two absolute measuring systems without restrictions. In addition, it is possible to carry out a plausibility check of the absolute encoder data so that the replacement of the encoder will surely cause the reference of the encoder to be cleared.

Probe Function with "Rapid Measuring"

The "Rapid measuring" function allows measuring a quick succession of probe signals without repeated clearing and setting of the probe enable (S-0-0405). The function is activated by setting the respective bits 5 and 6 in the **S-0-0169, Probe control parameter**.

Communication Via Serial Interface

The communication between drive and control unit via the serial interface is no longer supported.

Velocity Control Loop Monitor Can Be Switched Off

The velocity control loop monitor can be deactivated via parameter **P-0-0538, Motor function parameter 1**.

Extension of Parameter S-0-0403, Position feedback value status

Two new bits were defined in parameter **S-0-0403, Position feedback value status**.

Extended parameter structure:

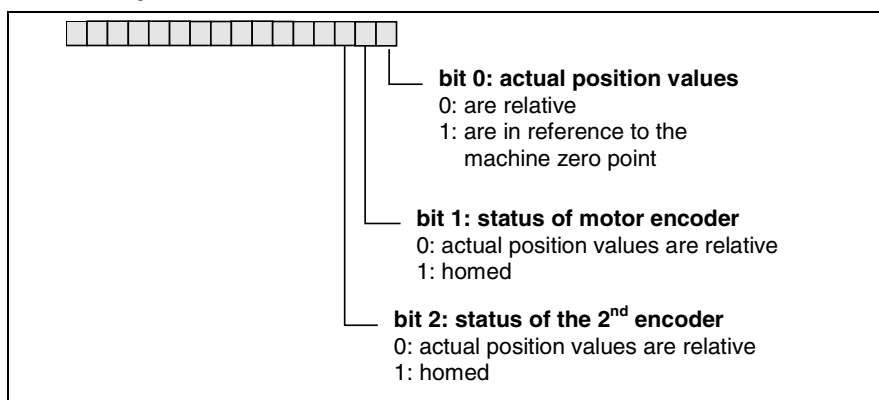


Fig. 2-2: S-0-0403, Position feedback value status

Selection List for Oscilloscope Function Extended

The following signals can be additionally selected:

- velocity command value
- master axis position
- actual position value 3

Master Axis Feedback Analysis Extended

- An incremental encoder can be used as measuring system.
- The range for the actual position values of the master axis feedback can be set.
- It is possible to use an absolute encoder that is calibrated with the "Set absolute measuring" command.
- A smoothing filter that can be parameterized is available for the actual position values of the master axis feedback.

Range for Fine Adjust Setting Enlarged

The **P-0-0083, Gear ratio fine adjust** parameter now has 6 instead of 2 decimal places. The data length was extended to 4 byte.

Phase Synchronization Mode Modified

- Only one electronic gear available. This can be changed in phase 4.
- The **P-0-0083, Gear ratio fine adjust** parameter also takes effect in the case of phase synchronization.
- The modulo value can be set. It is no longer determined by the drive.
- Relative synchronization can be set. When the master axis has stopped there won't be any synchronization motion.
- You can choose from 3 different synchronization ranges.
- The range for the master axis positions (P-0-0053) can be set as a multiple of one master axis revolution.

Electronic Cam Shaft Mode Modified

- The **P-0-0083, Gear ratio fine adjust** parameter also takes effect in the cam shaft mode.
- A linear motion can be superimposed to the motion that is determined by the cam shaft profile and the cam shaft distance.
- Simultaneous switching of electronic gear and cam shaft distance can be selected.
- A change in the value for the cam shaft distance can immediately take effect.
- Alternate activation of the second distance value.
- Relative synchronization can be set.
- The range for the master axis positions (P-0-0053) can be set as a multiple of one master axis revolution.

Electronic Pattern Ctrl Mode No Longer Available

The pattern ctrl with its respective parameters was removed.

Measuring Wheel Mode No Longer Available

The measuring wheel mode command was removed.

2.6 New Parameters

- S-0-0378, Encoder 1, absolute range
- S-0-0379, Encoder 2, absolute range
- S-7-0100, Velocity loop proportional gain
- S-7-0101, Velocity loop integral action time
- S-7-0106, Current loop proportional gain 1
- S-7-0107, Current loop integral action time 1
- S-7-0117, Feedback 2 Resolution
- S-7-0177, Absolute distance 1
- S-7-0178, Absolute distance 2
- P-0-0073, Cam shaft distance 2
- P-0-0177, Absolute encoder buffer 1
- P-0-0178, Absolute encoder buffer 2
- P-0-0186, Position feedback value 3, smoothing time
- P-0-0195, Velocity threshold n2
- P-0-0196, Velocity threshold n3
- P-0-0542, B100 Command Release motor holding brake
- P-0-0750, Master axis revolutions per master axis cycle
- P-0-0751, Synchronization divisions per command cycle slave axis
- P-0-0752, Load revolutions per actual value cycle slave axis
- P-0-0753, Position actual value in actual value cycle
- P-0-0754, Command value cycle
- P-0-0755, Gear reduction
- P-0-0765, Range of master encoder
- P-0-0766, Master encoder, monitoring window
- P-7-0517, Feedback type 2

2.7 Extended/Modified Parameters

- S-0-0032, Primary mode of operation
- S-0-0033, Secondary operating mode 1
- S-0-0034, Secondary operating mode 2
- S-0-0035, Secondary operating mode 3
- S-0-0169, Probe control parameter
- S-0-0403, Position feedback value status
- P-0-0083, Gear ratio fine adjust
- P-0-0088, Control word for synchronous operating modes
- P-0-0089, Status word for synchronous operating modes
- P-0-0538, Motor function parameter 1

2.8 Deleted Parameters

- S-0-0236, Master drive 1 revs.
- S-0-0237, Slave drive 1 revs.
- P-0-0049, Target position pattern ctrl profile
- P-0-0062, Pattern ctrl profile 2A
- P-0-0063, Pattern ctrl profile 2A, switch angle 1
- P-0-0064, Pattern ctrl profile 2B
- P-0-0065, Pattern ctrl profile 2B, switch angle 1
- P-0-0066, Pattern ctrl profile 3A
- P-0-0067, Pattern ctrl profile 3A, switch angle 1
- P-0-0068, Pattern ctrl profile 3A, switch angle 2
- P-0-0069, Pattern ctrl profile 3B
- P-0-0070, Pattern ctrl profile 3B, switch angle 1
- P-0-0071, Pattern ctrl profile 3B, switch angle 2
- P-0-0079, Info destination position
- P-0-0096, Distance to move in error situation
- P-0-0123, Absolute encoder buffer
- P-0-0220, D800 Command Measuring wheel mode
- P-0-0221, Actual position filter time const. for measuring wheel mode
- P-0-4021, Baud rate RS-232/485
- P-0-4022, Drive address
- P-0-4023, C400 Communication phase 2 transition
- P-7-0512, Default value for Kv-factor of position control
- P-7-0514, Absolute encoder offset
- P-7-4037, Velocity loop prop. gain, default
- P-7-4038, Velocity loop integral action time, default
- P-7-4039, Current loop prop. gain, default
- P-7-4042, Speed control smoothing time, default
- P-7-4049, Current loop integral action time, default

Notes

3 Service & Support

3.1 Helpdesk

Unser Kundendienst-Helpdesk im Hauptwerk Lohr am Main steht Ihnen mit Rat und Tat zur Seite. Sie erreichen uns

- telefonisch: **+49 (0) 9352 40 50 60**
über Service Call Entry Center Mo-Fr 07:00-18:00
- per Fax: **+49 (0) 9352 40 49 41**
- per e-Mail: **service@indramat.de**

Our service helpdesk at our headquarters in Lohr am Main, Germany can assist you in all kinds of inquiries. Contact us

- by phone: **+49 (0) 9352 40 50 60**
via Service Call Entry Center Mo-Fr 7:00 am - 6:00 pm
- by fax: **+49 (0) 9352 40 49 41**
- by e-mail: **service@indramat.de**

3.2 Service-Hotline

Außerhalb der Helpdesk-Zeiten ist der Service direkt ansprechbar unter

oder **+49 (0) 171 333 88 26**
+49 (0) 172 660 04 06

After helpdesk hours, contact our service department directly at

or **+49 (0) 171 333 88 26**
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3.3 Internet

Unter www.indramat.de finden Sie ergänzende Hinweise zu Service, Reparatur und Training sowie die **aktuellen** Adressen *) unserer auf den folgenden Seiten aufgeführten Vertriebs- und Servicebüros.

- Verkaufsniederlassungen
- Niederlassungen mit Kundendienst

Außerhalb Deutschlands nehmen Sie bitte zuerst Kontakt mit unserem für Sie nächstgelegenen Ansprechpartner auf.

*) <http://www.indramat.de/de/kontakt/adressen>
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At www.indramat.de you may find additional notes about service, repairs and training in the Internet, as well as the **actual** addresses *) of our sales- and service facilities figuring on the following pages.

- sales agencies
- offices providing service

Please contact our sales / service office in your area first.

*) <http://www.indramat.de/en/kontakt/adressen>
Data in the present documentation may have become obsolete since printing.

3.4 Vor der Kontaktaufnahme... - Before contacting us...

Wir können Ihnen schnell und effizient helfen wenn Sie folgende Informationen bereithalten:

1. detaillierte Beschreibung der Störung und der Umstände.
2. Angaben auf dem Typenschild der betreffenden Produkte, insbesondere Typenschlüssel und Seriennummern.
3. Tel./Faxnummern und e-Mail-Adresse, unter denen Sie für Rückfragen zu erreichen sind.

For quick and efficient help, please have the following information ready:

1. Detailed description of the failure and circumstances.
2. Information on the type plate of the affected products, especially type codes and serial numbers.
3. Your phone/fax numbers and e-mail address, so we can contact you in case of questions.

3.5 Kundenbetreuungsstellen - Sales & Service Facilities

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