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SERCANS
SERCOS interface Assembly

Firmware-Version FWA-SERCAN-SER-05VRS-MS

DOK-SERCAN-SER-05VRS**-FV01-EN-P

Rexroth
Indramat

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Editing sequence

Firmware status	Release	Comment
FWA-SERCAN-SER-05VRS	17.12.99	1st release of version 05

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Dept. ESP (JL)

Note This document has been printed on chlorine-free bleached paper.

Contents

1 General Information

1.1 Product Family

This is a firmware version of description of product family:

SERCANS SERCOS interface Assembly.

Current firmware version: FWA-SERCAN-SER-05VRS-MS

1.2 Referenced Hardware

Allowed hardware for the SERCANS modules

SCS A01.2	SCS P01.2	
SCS A02.1	SCS P02.1	SCS V02.1

1.3 Referenced Firmware

Product	Product Firmware
SCS-P01.2 SCS-P02.1 SCS-A01.2 SCS-A02.1 SCS-V02.1	FWA-SERCAN-SER-05VRS-MS-FLASH

Fig. 1-1: Referenced firmware

2 Firmware Version FWA-SERCAN-SER-05VRS

2.1 Release Notes

SERCANS firmware version FWA-SERCAN-SER-05VRS-MS-FLASH was released on

December 17, 1999.

2.2 How to Replace the Firmware

Sequence for Firmware Exchange with Initial Status 02/03/04VRS

To replace the firmware, follow the steps in the order specified and comply with the instructions:

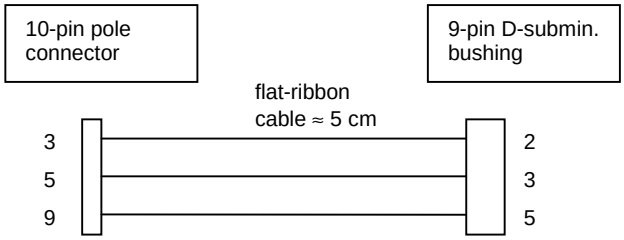
1. Before installing the new firmware, secure all Y parameters with all of the DriveTop user surface.
2. After the Y parameters are secure, install the new firmware on the SERCANS module.
3. Check hardware version as specified in *'Check hardware version'*.
4. Then load the Y parameters with DriveTop back on.
5. Version 05VRS contains, in comparison to version 02VRS/03VRS/04VRS several additional or altered parameters. SERCANS set these to their default values (see section ,*New or altered parameters'*.

2.3 Checking the Hardware Version

The exchange of SERCANS firmware can mean the loss of the hardware version which is stored in the E²-Prom.

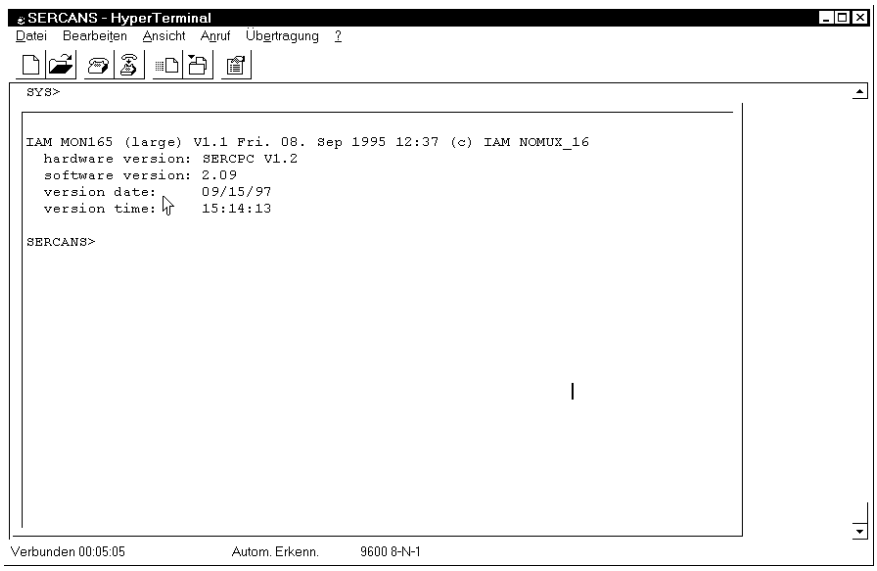
Use the following to perform this task:

- Terminal emulator (e.g., hyper terminal is available in Windows)
- SERCANS – monitor cable 1 (available from dept. customer service)



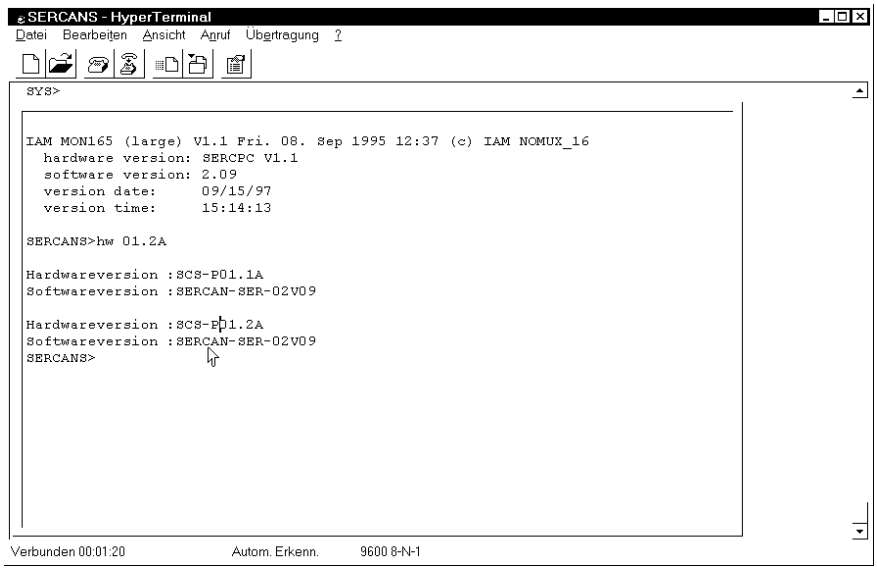
The procedure of described here makes it possible for the user to check and correct the hardware version:

- Make a note of the hardware version. It is on the barcode sticker on the underside of the SERCANS module. (Example: SCS-P01.2A-FW)
- Connect PC and SERCANS module with plug VS7 using a SYSDA 2.1 cable. Make sure that the red cable marking is inserted into plug contact 1 (contact 1 is identified with a triangle on the printed circuit board).
- Start terminal emulator. The following settings are necessary:
- 9600 baud / 8 data bits / no parity / 1 stopbit / no protocol
- Start the SCS-P, if there is on.
- The SERCANS monitor signals after start or with this menu after pressing the appropriate key:



First, the E²-Prom has to be initialized. To do this, enter *initeep* and conclude with the enter key.

Now set the five last places of the hardware version. For example, with "SCS-P01.2A-FW" enter *hw 01.2A* and conclude with enter:



- End monitor program.

3 New Functions

3.1 Command Value Generator Position Control

Reversing

Function When reversing in "position control" mode the drive moves as illustrated below.

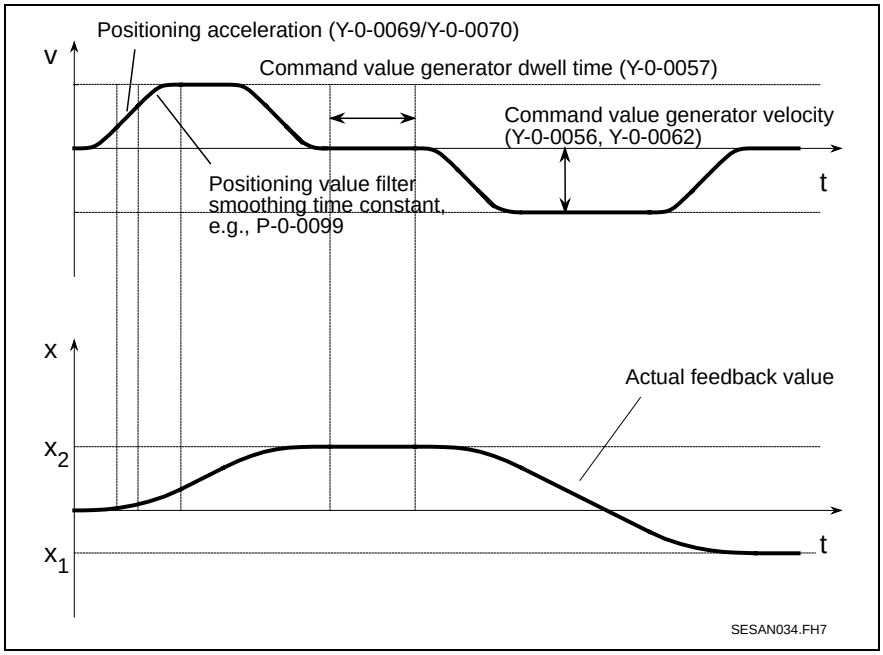


Fig. 3-1: Reversing with position control

The drive reverses between positions x_1 and x_2.

Starting with the present position, the drive accelerates to "command value generator velocity translatory" (Y-0-0056) or "command value generator velocity rotary" (Y-0-0062). The rise of velocity depends on "positioning acceleration translatory" (Y-0-0069) or "positioning acceleration rotary" (Y-0-0070) and "position command value smoothing filter time constant" (P-0-0099).

After "command value generator dwell time" (Y-0-0057) the rotational direction is reversed.

Activation Reverse is only possible as long as drive enable is activated. If removed, then the drive is stopped.

Parameters The following parameters can be set with translatory axes:

- "Command value generator position 1 translatory" (Y-0-0054)
- "Command value generator position 2 translatory" (Y-0-0055)
- "Command value generator velocity translatory" (Y-0-0056)
- "Positioning acceleration translatory" Y-0-0069)
- "Position command value smoothing filter time constant" (P-0-0099)
- "Command value generator dwell time" (Y-0-0057)

The following parameters can be set with rotary axes:

- "Command value generator position 1 rotary" (Y-0-0060)
- "Command value generator position 2 rotary" (Y-0-0061)
- "Command value generator velocity rotary" (Y-0-0062)
- "Positioning acceleration rotary" (Y-0-0070)
- "Position command value smoothing filter time constant" (P-0-0099)
- "Command value generator dwell time" (Y-0-0057)

Step-Mode

Relative motion

Starting with the present position, a relative motion is being conducted with travel path Δx. The direction is specified by the sign of Y-0-0064 or Y-0-0065.

Function

Step mode in "position control" mode results, for example, in the following motion:

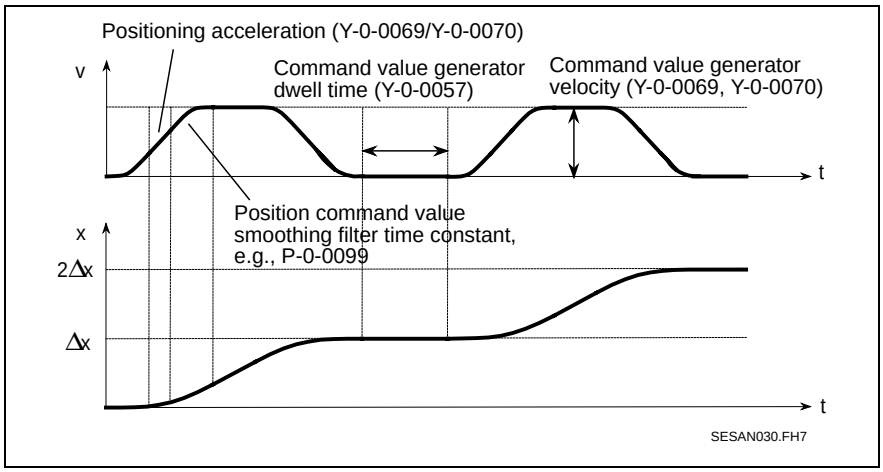


Fig. 3-2: Step-mode with position control

First there is acceleration, starting from present position, whilst taking into account "positioning acceleration translatory" (Y-0-0069) or "positioning acceleration rotary" (Y-0-0070) and "position command value smoothing filter time constant" (P-0-0099) to "command value generator velocity translatory" (Y-0-0056) or "command value generator velocity rotary" (Y-0-0062).

The drive precisely runs to position Y-0-0064/Y-0-0065.

After "command value generator dwell time" (Y-0-0057), the procedure is repeated.

Activation

Step mode is only possible if the drive enable is activated. If it is removed, then the drive is stopped.

Parameter

The following parameters can be set with translatory axes:

- "Command value generator travel distance translatory" (Y-0-0064)
- "Command value generator velocity translatory" (Y-0-0056)
- "Positioning acceleration translatory" (Y-0-0069)
- "Position command value smoothing filter time constant" (P-0-0099)
- "Command value generator dwell time" (Y-0-0057)

The following parameters can be set with rotary axes:

- "Command value generator travel distance rotary" (Y-0-0065)
- "Command value generator velocity rotary" (Y-0-0062)
- "Positioning acceleration rotary"(Y-0-0070)
- "Position command value smoothing filter time constant" (P-0-0099)
- "Command value generator dwell time" (Y-0-0057)

3.2 Real Time Bits of the Oscilloscope Function

SERCOS interface offers a free parametrization of two real time control and status bits. Till now, SERCANS used real time control and status bit 1 to ensure a simultaneous oscilloscope triggering of several drives.

This version does not make it possible for the use to freely parametrize all real time bits. In this version, real time bit 1 can be used by switching SERCANS off.

Bit 4 of Y-0-0001 "Bus mode"	Oscilloscope function possible ?	Free use of all real time bits ?
0	yes	no
1	no	yes

3.3 Noise Generator

General

When starting up a machine axes it is not always possible to use the step response of the velocity or position control loop to determine the system's frequency. In such cases, a noise generator can be used. It makes a test signal without average available.

Function

The noise generator makes a pseudo-static binary signal available. Its amplitude accepts positive and negative values. The drive receives a new command value during each SERCOS cycle.

The amplitude of the output signal can be scaled for the axis in use via parameter "amplitude noise source" (Y-0-0067).

The output signal is generated repeatedly about every 8 seconds given a SERCOS cycle time of 2 ms. The repetition time t_W of the noise generator depends on the "SERCOS cycle time" (Y-0-0004) and is computed as follows:

$$t_W = 2^{12} \cdot t_{Scyc}$$

The noise signal can be switched on in any command value generator mode and is added to the relevant command value. This takes place by setting bit 5 in parameter "command value generator control word" (Y-0-0053).

Activation

The noise generator can be activated as long as the command value generator has been started and drive enable is set. If the drive enable is removed, then the noise generator stops.

Parameter

The following parameters can be set with rotary and translatory axes:

- "Amplitude noise source" (Y-0-0067)
- "Command value generator control word" (Y-0-0053)
- "Command value generator enable" (Y-0-0044)
- "SERCOS cycle time" (Y-0-0004)
- all parameters of the command value generator operating mode.

3.4 List of Measured Values

General Information

An external signal analyzer, e.g., a Hewlett Pack HP 35670A, can be used to evaluate the system response to the noise signal. It receives its information via an analog output of the drives.

If no external signal analyzer is available, then both existing internal lists of measured values can be used to compile measuring data. The contents of the list can then be evaluated with an external PC program.

Function

Via parameter "command value generator operating mode axis structure 1..8" (Y-0-0045 to Y-0-0052) are selected, in addition to the command value generator operating mode, as of described in DOK-SERCAN-SER-05VRS**-AW01-EN-P, section 8 "command value generator functions", in bits 12 to 15 of the measuring signals wanted. The existing lists which are made up of 4,096 elements and used for the command and actual values, are filled with measuring data after bit 6 is set in parameter "command value generator control word" (Y-0-0053). The drive queries the measuring data in the SERCOS cycle. Upon completion of the measuring transaction, bit 6 of parameter "command value generator control word" (Y-0-0053) is automatically reset. The lists can now be read out by querying parameter "list of scope data 1 noise source" (Y-0-0068) and "list of scope data 2 noise source" (Y-0-0072) and, if necessary, stored in a file on the PC or evaluated online in the control.

Activation

The process of selecting the measured values can only take place in phase 2.

The measuring procedure can be activated as long as command value generator is started and drive enable applied. Once all data are compiled, the process is automatically stopped.

Parameter

The following parameters can be set with both rotary and translatory axes:

- "Command value generator operating mode axis structure 1..8" (Y-0-0045 to Y-0-0052)
- "Command value generator control word" (Y-0-0053)

The measurands are stored in both of the following parameters:

- "List of scope data 1 noise source" (Y-0-0068)
- "List of scope data 2 noise source" (Y-0-0072)

3.5 New Monitor Functions

The SERCANS monitor was expanded with two options:

- a cyclic reading of any internal address and
- a cyclic writing of a value to any address

This accessing is possible via command line *RZA <address>* for cyclic reading and *WZA <address> <data>* for cyclic writing.

3.6 New Interrupts in the Status Register

SERCANS can use the interrupt status register to trigger interrupts to the NC control unit. It can also

- signal a system error and
- acknowledge an MMI service channel transmission

as part of the drive independant operations.

In drive-related terms

- NC service channel transmission are acknowledged,
- a change in drive warnings (see parameter Y-0-0001),
- a change in drive messages (see parameter Y-0-0001),
- changes in command acknowledge are displayed and
- drive diagnostics are signalled.

The following interrupt has been added to version 05:

- Acknowledgement of bits 11 and 12 of the interrupt control register. Bit 11 signals that all parameters are stored (for bit 12) or all parameters have been activated (for bit 11).

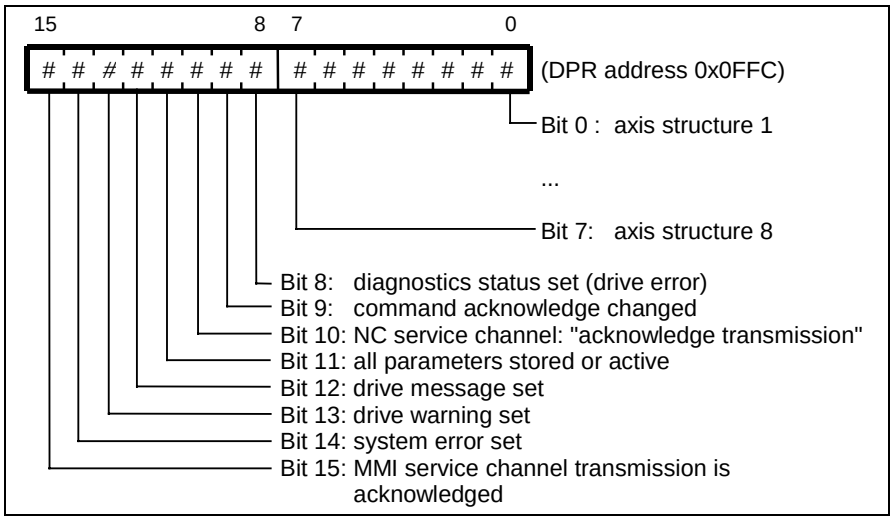


Fig. 3-3: Interrupt status register

3.7 SERCOS Interface Version V01.1

This SERCANS version also supports drives of the SERCOS interface version V01.1, for example DIAX02 "SZU firmware". In all older SERCANS versions it was not possible to use the command value generator.

3.8 Validity of AT Data in the Actual Value Channel

The SERCOS interface standard permits a simple failure of a drive telegram. In this case, the data of the previous drive telegram are copied in the relevant axis structure.

The control can determine the validity of a drive telegram via the register "AT telegram invalid" in the Dual-Port-RAM (see DOK-SERCAN-SER-05VRS**-AW01-EN-P, section 9.1 "Memory Map Overview").

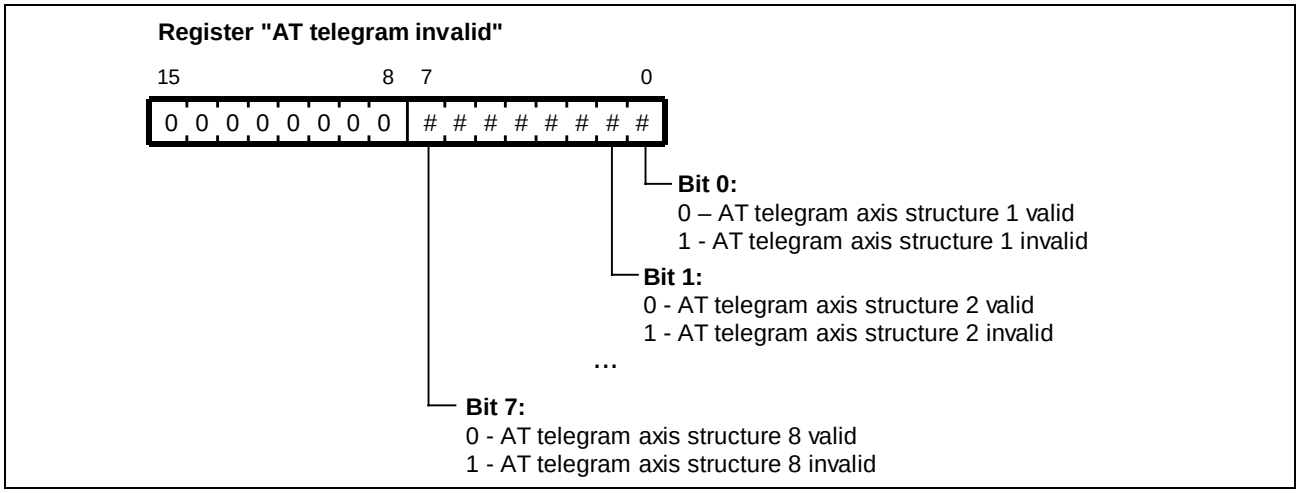


Fig. 3-4: Register "AT telegram invalid"

4 New or Altered Parameters

Y-0-0001 Bus mode

Initial version	New Parameter ?	Altered Function ?
02VRS		✓
03VRS		✓
04VRS		✓

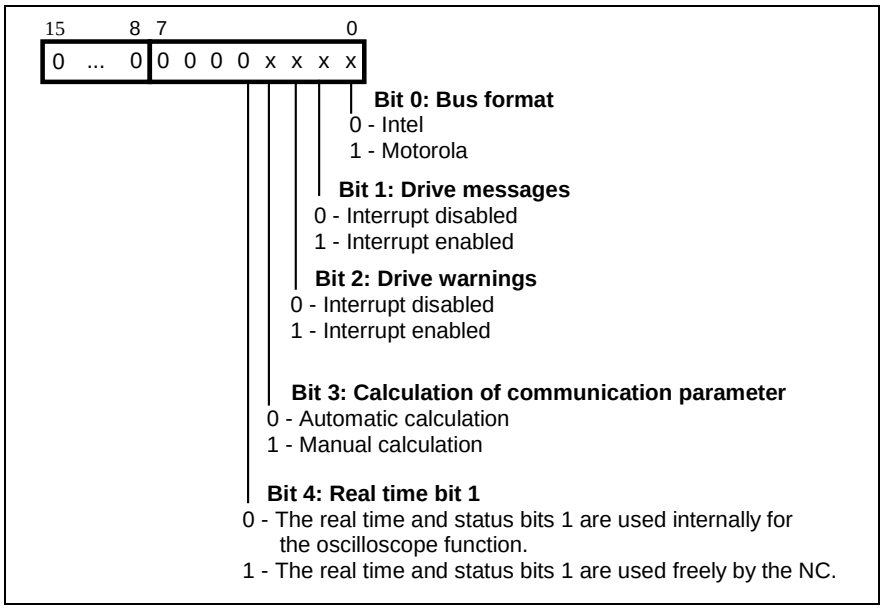
Bus mode can be used to institute the following settings:

- Bit 0 is used to allocate low and high words in the DPR with 4 byte values. Either an Intel allocation (‘high word’ to higher addresses) or a Motorola allocation (‘high word’ to lower addresses) is possible. SERCANS takes care of the word allocation specified here. The Intel format is normally used with SCS-P, while Motorola is used with SCS-V.
- Bit 1 can be used to enable or disable the DPR interrupt "drive messages" (class 3 diagnostics) in the interrupt status register.
- Bit 2 can be used to enable or disable the DPR interrupt "drive warnings" (class 2 diagnostics) in the interrupt status register.
- Bit 3 makes it possible to switch off the SERCANS internal calculation of communication parameters.

Note: If manual calculation of communication parameters is set in bit 3, then the communication parameters must be set in the drive. The standard setting is "automatic computation”.

- With bit 4 the use of real time control and status bits 1 is fixed.

Note: If internal use is set in bit 4 (bit 4 equal to 1), then DriveTop **cannot** use the oscilloscope function!



Y-0-0001 Attribute

Data length:	2 bytes
Display format:	binary number
Scaling / Unit:	1
Minimum input value:	—
Maximum input value:	—
Default value:	0
Access:	write protected in operating mode

Y-0-0044 Command value generator enable

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		✓
04VRS		✓

The operating data of the command value generators are globally enabled with this parameter.

Note: Motions can be initiated via the parameters of the command value generator if bit 0 is set in this parameter! SERCANS ignores the command values of the control.

To ensure that no motion is triggered, it is necessary to set this parameter to zero! This setting validates the command values of the control in the dual port RAM and are activated by SERCANS.

Note: SERCANS sets this parameter to zero at each new start.

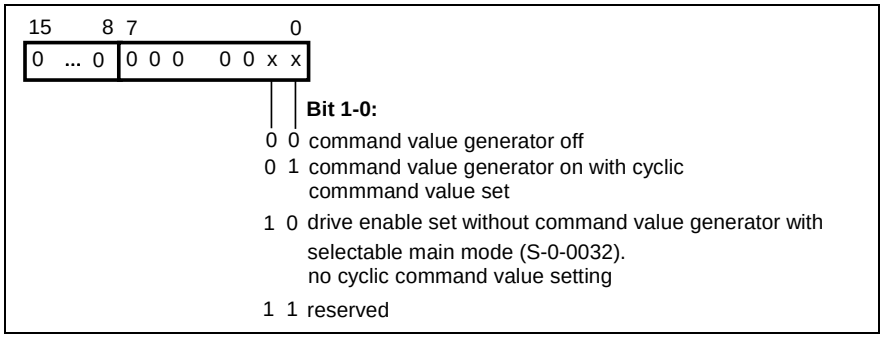


Fig. 4-1: Command value generator enable

This parameter is not used to set the operating mode of the individual axes but it can be used globally switch the command value generator function on and off.

Y-0-0044 Attribute

Data length:	2 bytes
Display format:	binary number
Scaling / Unit:	—
Minimum input value:	—
Maximum input value:	—
Default value:	00000000.00000000
Access:	write protected in operating mode

Y-0-0045 Command value generator operating mode axis structure 1

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		✓
04VRS		✓

This parameter is used to select the modes of the command value generator for axis structure 1.

Note: If the command value generator is switched off in parameter Y-0-0044, then this parameter is dormant.

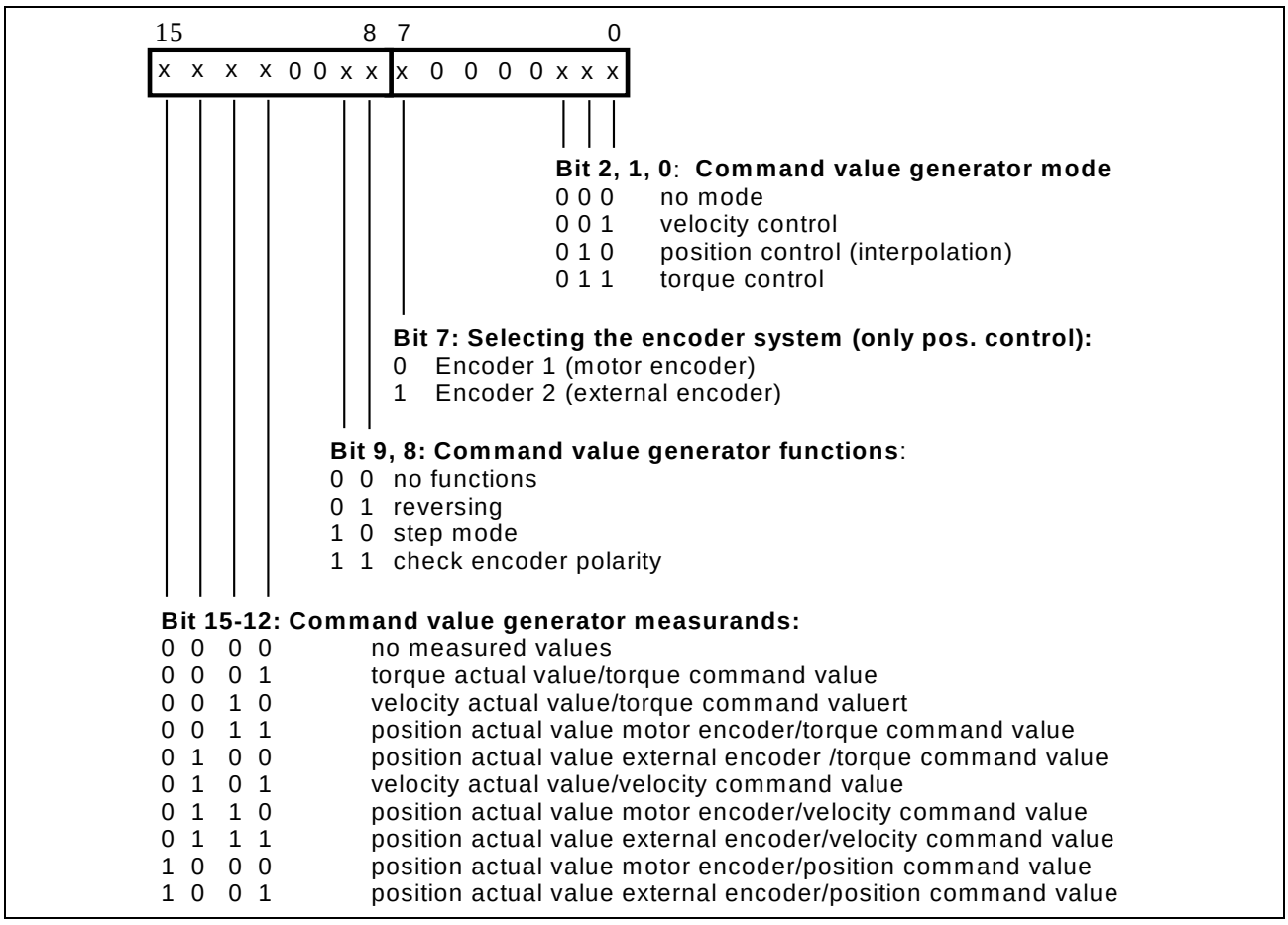


Fig. 4-2: Operating mode of command value generator

A specific cyclically configured telegram is needed, but which is needed depends on the activated mode.

If the specified parameters are not configured in the cyclic telegram, then SERCANS will conduct the necessary configuration.

The original configuration is stored so that after the command value generator is deactivated, the control can once again control drive movements.

Y-0-0045 Attribute

Data length:	2 bytes
Display format:	binary number
Scaling / Unit:	—
Minimum input value:	—
Maximum input value:	—
Default value:	00000000.00000000
Access:	write protected in operating mode

Y-0-0046 Command value generator operating mode axis structure 2

(see "command value generator operating mode axis structure 1", Y-0-0045)

Y-0-0046 Attributes

data length:	2 bytes
display format:	binary number
scaling / unit:	--
minimum input value:	--
maximum input value:	--
default value:	00000000.00000000
access:	write protected in operating mode

Y-0-0047 Command value generator operating mode axis structure 3

(see "command value generator operating mode axis structure 1", Y-0-0045)

Y-0-0047 Attributes

data length:	2 bytes
display format:	binary number
scaling / unit:	--
minimum input value:	--
maximum input value:	--
default value:	00000000.00000000
access:	write protected in operating mode

Y-0-0048 Command value generator operating mode axis structure 4

(see "command value generator operating mode axis structure 1", Y-0-0045)

Y-0-0048 Attributes

data length:	2 bytes
display format:	binary number
scaling / unit:	--
minimum input value:	--
maximum input value:	--
default value:	00000000.00000000
access:	write protected in operating mode

Y-0-0049 Command value generator operating mode axis structure 5

(see "command value generator operating mode axis structure 1", Y-0-0045)

Y-0-0049 Attributes

data length:	2 bytes
display format:	binary number
scaling / unit:	--
minimum input value:	--
maximum input value:	--
default value:	00000000.00000000
access:	write protected in operating mode

Y-0-0050 Command value generator operating mode axis structure 6

(see "command value generator operating mode axis structure 1", Y-0-0045)

Y-0-0050 Attributes

data length:	2 bytes
display format:	binary number
scaling / unit:	--
minimum input value:	--
maximum input vaue:	--
default value:	00000000.00000000
access:	write protected in operating mode

Y-0-0051 Command value generator operating mode axis structure 7

Y-0-0051 Attributes

data length:	2 bytes
display format:	binary number
scaling / unit:	--
minimum input value:	--
maximum input value:	--
default value:	00000000.00000000
access:	write protected in operating mode

Y-0-0052 Command value generator operating mode axis structure 8

(see "command value generator operating mode axis structure 1", Y-0-0045)

Y-0-0052 Attributes

data length:	2 bytes
display format:	binary number
scaling / unit:	--
minimum input value:	--
maximum input value:	--
default value:	00000000.00000000
access:	write protected in operating mode

Y-0-0053 Command value generator control word

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		✓
04VRS		✓

Note: Bits 0 to 7 of this parameter are not stored resident. The value 0x0 is written into them with each runup and powering up of the system.

This parameter contains the control commands for command value generator. These commands are only instituted if bit 0 is set in parameter Y-0-0044.

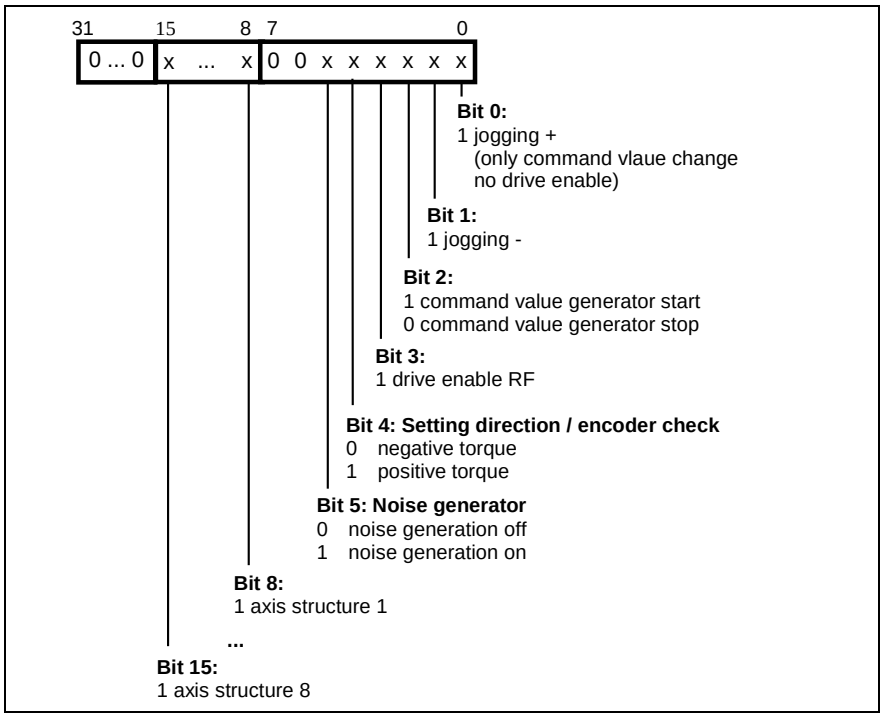


Fig. 4-3: Control word of the command value generators

The physical drive addresses logically allocated in parameter Y-0-0012 are selected using bits 8 to 15. The choice is made by setting the relevant bit to "1".

Y-0-0053 Attribute

Data length:	4 bytes
Display format:	binary number
Scaling / Unit:	—
Minimum input value:	0
Maximum input value:	11111111.11111111.11111111.11111111
Default value:	00000000.00000000.00000000.00000000
Access:	not write protected

Y-0-0054 Command value generator position 1 translatory

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		
04VRS		

This parameter is active only with translatory scaling of the axis. It has the following definition, depending on the set command value generator function:

Reversing with velocity control

Movements with negative velocity value ("command value generator velocity translatory", Y-0-0056) cyclically check whether this position is suceeded. If so, then the velocity command goes to 0.

Reversing with position control

Movements with negative value ("command value generator velocity translatory", Y-0-0056) run to this position.

Y-0-0054 Attribute

Data length:	4 Byte
Display format:	signed decimal number
Scaling / Unit:	10^{-4} mm
Minimum input value:	-274748,3648
Maximum input value:	214748,3647
Default value:	0
Access:	not write protected

Y-0-0055 Command value generator position 2 translatory

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		
04VRS		

This parameter is only active with translatory scaling of axes.

Reversing with velocity control

Movements with positive velocity value ("command value generator velocity translatory", Y-0-0056) are cyclically checked as to whether this position is exceeded. If so, then velocity command goes to 0.

Reversing with position control

Movements with positive value ("command value generator velocity translatory") run to this position.

Y-0-0055 Attribute

Data length:	4 Byte
Display format:	signed decimal number
Scaling / Unit:	10^{-4} mm
Minimum input value:	-214748,3648
Maximum input value:	214748,3647
Default value:	0
Access:	not write protected

Y-0-0056 Command value generator velocity translatory

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		✓
04VRS		✓

This parameter is only active with translatory scaling of the axes. It writes the velocity into command value generator operating mode "reversing" and "step mode".

Y-0-0056 Attribute

Data length:	4 Byte
Display format:	signed decimal number
Scaling / Unit:	mm/min
Minimum input value:	-2147483.648
Maximum input value:	+2147483.647
Default value:	0
Access:	not write protected

Y-0-0057 Command value generator dwell time

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		
04VRS		

The duration with which the drive remains at the position last reached before travelling to the next position is set in this parameter. It only affects functions "reversing" and "step mode".

Y-0-0057 Attribute

Data length:	2 Byte
Display format:	unsigned decimal number
Scaling / Unit:	1 ms
Minimum input value:	0
Maximum input value:	10000
Default value:	0
Access:	not write protected

Y-0-0058 Command value generator jogging speed translatory

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		
04VRS		

This parameter is only active with translatory scaling of axes and in "velocity control mode“. It specifies the jogging velocity of the drive.

Y-0-0058 Attribute

Data length:	4 Byte
Display format:	signed decimal number
Scaling / Unit:	10^{-3} mm/min
Minimum input value:	-2147483,648
Maximum input value:	2147483,647
Default value:	0
Access:	not write protected

Y-0-0059 Command value generator status word

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		✓
04VRS		

This parameter contains the acknowledge of the received control command for the command value generator. The single bits are only set if the command is executed without an error. Bit assignment precisely corresponds to parameter "command value generator control word" (Y-0-0053).

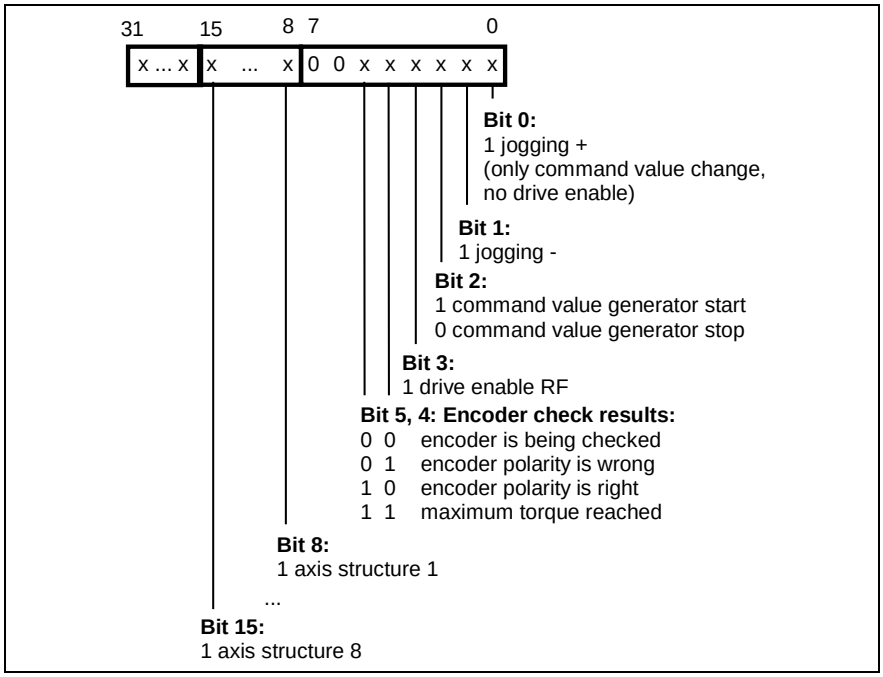


Fig. 4-4: Command value generator status word

Bits 8 to 15 show the physical drive addresses logically allocated in parameter Y-0-0012.

Y-0-0059 Attribute

Data length:	4 Byte
Display format:	binary number
Scaling / Unit:	—
Minimum input value:	—
Maximum input value:	—
Default value:	—
Access:	write protected

Possible Causes for Non-Acknowledged Control Commands

- Value 0x0000 has been set in parameter Y-0-0044.
- If drive enable is not set or acknowledged, then jogging is not possible and the command value generator not started.
- If jogging is still active, then reverse and step mode cannot be started. The same applies in the opposite case.
- If the drive is receiving no power or if it is signalling an error, then drive enable will not be acknowledged.
- SERCANS firmware checks whether communication via serial interface has occurred. At the end of timeout after the last communication, the command value generator is stopped to avoid unwanted axis motions.

Y-0-0060 Command value generator position 1 rotary

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		
04VRS		

This parameter is active only with rotary scaling of the axis. It has the following definition, depending on the set command value generator function:

Reversing with velocity control Movements with the negative velocity value ("command value generator velocity rotary", Y-0-0062) are checked cyclically as to whether position is suceeded. If so, then velocity command value goes to 0.

Reversing with position control Movements with negative velocity value ("command value generator velocity rotary“) run to this position.

Y-0-0060 Attribute

Data length:	4 Byte
Display format:	signed decimal number
Scaling / Unit:	10^{-4} degrees
Minimum input value:	-214748,3648
Maximum input value:	214748,3647
Default value:	0
Access:	not write protected

Y-0-0061 Command value generator position 2 rotary

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		
04VRS		

This parameter is only active with rotary scaling of axes.

Reversing with velocity control

Movements with positive velocity value ("command value generator velocity rotary", Y-0-0062) cyclically check whether this position is exceeded. If so, then the velocity command value goes to 0.

Reversing with position control

Movements with positive velocity value ("command value generator velocity rotary") run to this position.

Y-0-0061 Attribute

Data length:	4 Byte
Display format:	signed decimal number
Scaling / Unit:	10^{-4} degrees
Minimum input value:	-214748,3648
Maximum input value:	214748,3647
Default value:	0
Access:	not write protected

Y-0-0062 Command value generator velocity rotary

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		
04VRS		

This parameter is only effective with rotary axis scaling. It sets the velocity in the command value generator mode "reversing" and "step mode".

Y-0-0062 Attribute

Data length:	4 Byte
Display format:	signed decimal number
Scaling / Unit:	1 rpm
Minimum input value:	-200000.0000
Maximum input value:	+200000.0000
Default value:	0
Access:	not write protected

Y-0-0063 Command value generator jogging speed rotary

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		
04VRS		

This parameter is only active with rotary scaling of axes and in "velocity control mode". It specifies the jogging velocity of the drive.

Y-0-0063 Attribute

Data length:	4 Byte
Display format:	signed decimal number
Scaling / Unit:	10^{-4} 1/min
Minimum input value:	-214748,3648
Maximum input value:	214748,3647
Default value:	0
Access:	not write protected

Y-0-0064 Command value generator travel distance translatory

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		
04VRS		

This parameter only affects function "step mode". It has the following definition, depending on the operating mode set:

Velocity control Movements with negative or postive velocity values ("command value generator translatory or rotary“) are cyclically checked whether, starting with the present position, the new relative target position Δx has been exceeded. If so, then velocity is set to 0.

Position control Movements with negative or positive velocity values ("command value generator velocity translatory or rotary“) are approached starting with the present position and going to the new relative target position Δx.

Y-0-0064 Attribute

Data length:	4 Byte
Display format:	unsigned decimal number
Scaling / Unit:	10^{-4} mm
Minimum input value:	0
Maximum input value:	429496,7295
Default value:	0
Access:	not write protected

Y-0-0065 Command value generator travel distance rotary

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS		
04VRS		

This parameter is effective with function "reversing" and "step mode“. It has the following definition, depending on the mode set:

Velocity control Movements with negative or positive velocity values ("command value generator translatory or rotary“) are cyclically checked whether, starting with the present position, the new relative target position Δx has been exceeded. If so, then velocity command value is set to 0.

Position control Movements with negative or positive velocity value ("command value generator velocity translatory or rotary“) are approached starting with the present position and going to the new relative target position Δx.

Y-0-0065 Attribute

Data length:	4 Byte
Display format:	unisgned decimal number
Scaling / Unit:	10^{-4} degrees
Minimum input value:	0
Maximum input value:	429496,7295
Default value:	0
Access:	not write protected

Y-0-0066 List of telegram type parameter

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS	✓	
04VRS		

The choice can be made in this list between standard telegrams (input 0-6) and application telegrams (input 7).

Configuration of real time data (telegrams) is explained in section 8.

Possible inputs are:

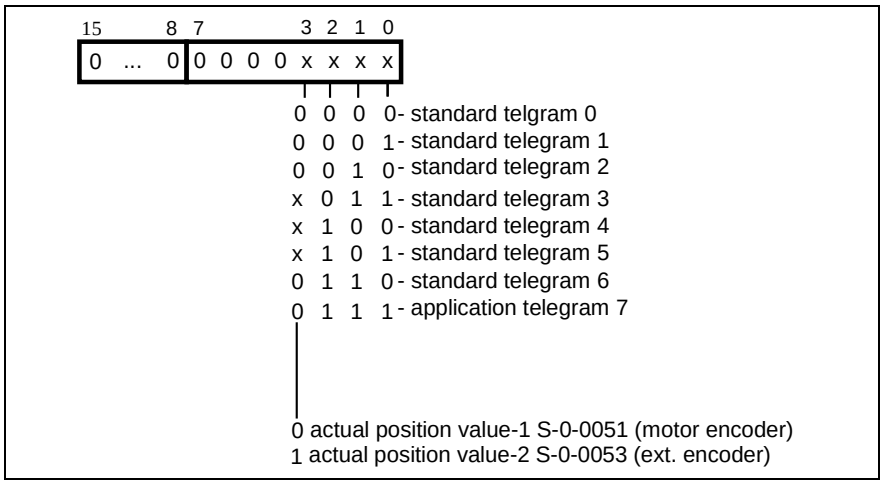


Fig. 4-5: Element structure

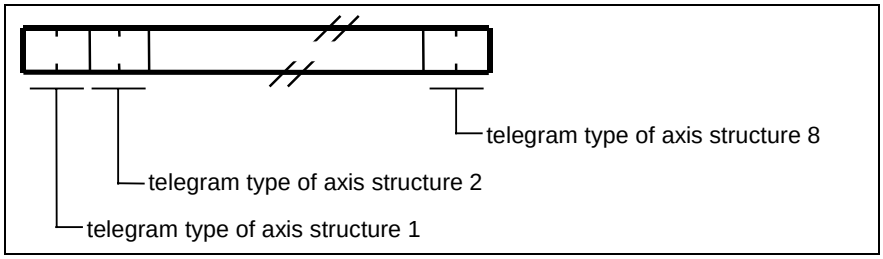


Fig. 4-6: List structure (Y-0-0066)

Y-0-0066 Attribute

Data length:	2 Byte var. length (Max: 16 Byte)
Display format:	unsigned decimal number
Scaling / Unit:	1
Minimum input value:	0
Maximum input value:	15
Default value:	0016 (act. length) 0016 (max. length)
Access:	write protected in operating mode

Y-0-0067 Amplitude noise source

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS	✓	
04VRS		✓

This parameter sets the output amplitude of the noise generator with translatory scaling.

Note: To superimpose a noise signal over the movement of the command value generator it is necessary to switch it on in parameter Y-0-0053.

Y-0-0067 Attribute

Data length:	4 Byte
Display format:	signed decimal number
Scaling / Unit:	1 degrees, mm, rpm, mm/min, %
Minimum input value:	0.001
Maximum input value:	+429496.7295
Default value:	0
Access:	not write protected

Y-0-0068 List of scope data 1 noise source

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS	✓	
04VRS		✓

This parameter contains the measured command values of the command value generator.

Y-0-0068 Attribute

Data length:	4 Byte var. length (Max: 16 kByte)
Display format:	signed decimal number
Scaling / Unit:	1 degrees, mm, rpm, mm/min, %
Minimum input value:	—
Maximum input value:	—
Default value:	—
Access:	write protected

Y-0-0069 Positioning acceleration translatory

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS	✓	
04VRS		✓

This parameter is only effective with translatory scaling of the axis and command generator modes in position control. It specifies the positioning velocity.

Y-0-0069 Attribute

Data length:	4 Byte
Display format:	unsigned decimal number
Scaling / Unit:	1 mm/sec²
Minimum input value:	0
Maximum input value:	+4294967.295
Default value:	0
Access:	not write protected

Y-0-0070 Positioning acceleration rotary

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS	✓	
04VRS		✓

This parameter is only effective with rotary scaling of the axis and command generator modes in position control. It specifies the positioning velocity.

Y-0-0070 Attribute

Data length:	4 Byte
Display format:	unsigned decimal number
Scaling / Unit:	1 rad/sec²
Minimum input value:	0
Maximum input value:	+4294967.295
Default value:	0
Access:	not write protected

Y-0-0071 Powering up target phase

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS	✓	
04VRS		

This phase is automatically reached after switching on the SERCANS assembly.

Y-0-0071 Attribute

Data length:	2 Byte
Display format:	unsigned decimal number
Scaling / Unit:	1
Minimum input value:	0
Maximum input value:	4
Default value:	4
Access:	not write protected

Y-0-0072 List of scope data 2 noise source

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS	✓	
04VRS	✓	

This parameter contains the measured actual values of the command value generator.

Y-0-0072 Attribute

Data length:	4 Byte var. length (Max: 16 kByte)
Display format:	signed decimal number
Scaling / Unit:	1 degrees, mm, rpm, mm/min, %
Minimum input value:	—
Maximum input value:	—
Default value:	—
Access:	write protected

Y-0-0073 List of error counter AT

Initial version	New Parameter ?	Altered function ?
02VRS	✓	
03VRS	✓	
04VRS	✓	

This parameter counts the simple AT failures in communication phases 3 and 4.

If two sequential ATs of a drive fail, then error "Double AT failure" is generated.

"Error counter AT" only counts to 65535 and then stops. This value is only reached if there is severe interference in transmissions over an extended period of time.

To reset the counter, write access it.

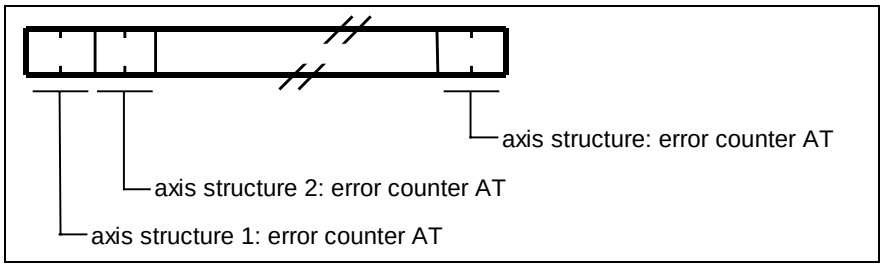


Fig. 4-7: List structure (Y-0-0073)

Y-0-0073 Attribute

Data length:	2 Byte var. length (Max: 16 Byte)
Display format:	unsigned decimal number
Scaling / Unit:	1
Minimum input value:	0
Maximum input value:	65535
Default value:	0016 (act. length) 0016 (max. length) 0000 ... 0000
Access:	not write protected

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