SSI 3001
Digital Panel Meter

Instruction Set for Serial Interface

Description

ERMA
Electronic GmbH

Warranty

For delivered products our "Allgemeine Lieferungs- und Zahlungsbedingungen" are effective. In no event we or our suppliers shall be liable for any other damages whatsoever (including, without limitation, damages for loss of business profits, business interruption or other pecuniary loss) arising out of or inability to use this product.

All our products are warranted against defective material and workmanship for a period of two (2) years from date of delivery. If it is necessary to return the product, the sender is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit. The warranty does not apply to defects resulting from action of the buyer, such as mishandling, improper interfacing, operation outside of design limits, improper repair or unauthorized modification.

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1.   *General*

The digital instrument SSI 3001 can be equipped with a isolated, bidirectional inter-face. The digital instrument is available with the RS 485 interface, the RS 232 inter-face and the courant-Loop-interface (TTY). The connection of the interfaces is specify in the manual of the instrument SSI 3001.

2.   *Communications protocol*

The organization of the communications protocol is conformed to DIN ISO 1745.
The information message consist of the transmission control character, the com-mand an the optional datas.
The instrument SSI 3001 gives a answer to each command. A host wait for the ans-wer and devaluate them.

Transmission parameters

baud rate:	: 300, 1200, 2400, 4800, 9600, 19200
parity	: no
data bits	: 8
stop bits	: 1

Transmission format:

SOH	D	D	STX	C	C	C	X..X	ETX	BCC

Significance of the sign:

SOH (ASCII 01)	: start of heading
D	: adress (decimal) of the instrument
STX (ASCII 02)	: start of text
C	: command signal sequence
	: optional datas
ETX (ASCII 03)	: end of text
BCC	: control byte
ACK (ASCII 06)	: positive acknowledge from the receiver
NAK (ASCII 21)	: negative acknowledge from the receiver

Generation of the control byte:
Carry out a exclusive-OR operation (XOR) for all bytes between *STX* (exclusive) and *ETX* (inclusive). The byte can be used direct as the control byte, if the value is higher as 32. If the value of the control byte is lower as 32, it must be added 32 to them.

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Possible message formats

Return of datas:

STX	X..X	ETX	BCC

Positive acknowledge:

ACK

Negative acknowledge (Errors):

NAK

Reasons of a negative acknowledge (Errors):

- command is unknown
- datas are wrong (to short or to long)
- datas contains wrong signs
- datas lies out of the value range
- wrong control byte

3. General commands

3.1. Read the ENCODER-, MIN- and MAX-Value

Read the ENCODER-Value

SOH	D	D	STX	M	S	W	ETX	BCC

Read the MIN-Value

SOH	D	D	STX	M	I	N	ETX	BCC

Read the MAX-Value

SOH	D	D	STX	M	A	X	ETX	BCC

Answer of SSI 3001 to the commands

STX	V or X	X	X	X	X	X	ETX	BCC

V   sign   positive: ' ' (ASCII 20h)
                                   negative: '-' (ASCII 2Dh)
X   ENCODER-, MIN- or MAX-Value
            valid values   -99999 to 999999

3.2. Main reset

Carry out the main reset

SOH	D	D	STX	G	R	S	ETX	BCC

Answer of SSI 3001

ACK

3.3. Type designation

Read the type designation

SOH	D	D	STX	G	E	R	ETX	BCC

Answer of SSI 3001

STX	S	S	I	3	0	0	1	X	ETX	BCC

SSI 3001   type designation
X   X = 0 => no option analog output
               X = 1 => with option analog output

3.4. Software version

Read the software version

SOH	D	D	STX	**V**	**E**	**R**	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

X   000 to 099 => software version of the instrument

3.5. Number of production

Read the number of production

SOH	D	D	STX	**S**	**R**	**N**	ETX	BCC

Answer of SSI 3001

STX	X	X	X	X	X	X	ETX	BCC

X   setting number of production

3.6. Date of production

Read the date of production

SOH	D	D	STX	**D**	**A**	**T**	ETX	BCC

Answer of SSI 3001

STX	0	X	X	X	X	X	ETX	BCC

X   setting date of production

4. Commands of configuration level (P-00)

4.1. Resolution (bits) of the encoder

Read the setting of resolution (bits)

SOH	D	D	STX	**B**	**I**	**T**	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the resolution of the connected encoder

SOH	D	D	STX	**B**	**I**	**T**	X	X	X	ETX	BCC

X   setting the resolution of the connected encoder
           valid values   010 to 025

Answer of SSI 3001

ACK

<u>Example:</u> Encoder with a resolution of 13 Bit

SOH	D	D	STX	**B**	**I**	**T**	0	1	3	ETX	BCC

4.2. Output code of the encoder

Read the setting code of the connected encoder

SOH	D	D	STX	**G**	**B**	**C**	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the code of the connected encoder

SOH	D	D	STX	**G**	B	C	X	X	X	ETX	BCC

X   setting code of the connected encoder
           valid values   000 or 001

Answer of SSI 3001

ACK

<u>Example:</u> Output code Gray

SOH	D	D	STX	**G**	B	**C**	0	0	0	ETX	BCC

4.3.   Master/Slave Mode

Read the setting mode of the SSI 3001

SOH	D	D	STX	**M**	S	**B**	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the mode

SOH	D	D	STX	**M**	S	**B**	X	X	X	ETX	BCC

X   setting mode of the ssi 3001
               valid values   000 or 001

Answer of SSI 3001

ACK

<u>Example:</u> Slave-Mode

SOH	D	D	STX	**M**	S	**B**	0	0	1	ETX	BCC

4.4.   Clock for Master-Mode

Read the setting clock of ssi 3001

SOH	D	D	STX	**C**	L	**K**	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the clock

SOH	D	D	STX	**C**	L	K	X	X	X	ETX	BCC

X   setting clock of ssi 3001
               valid values   000 or 001

Answer of SSI 3001

ACK

Example: Clock = 200 kHz

SOH	D	D	STX	**C**	L	**K**	0	0	0	ETX	BCC

4.5.   Zero defination

Read the setting number of zero defination

SOH	D	D	STX	**N**	U	**L**	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the zero defination of SSI 3001

SOH	D	D	STX	**N**	U	**L**	X	X	X	ETX	BCC

X   setting number of zero defination
               valid values   000 or 001

Answer of SSI 3001

ACK

Example: Zero defination with ± display

SOH	D	D	STX	**N**	U	**L**	0	0	1	ETX	BCC

4.6.   Rotation direction

Read the setting number of rotation direction

SOH	D	D	STX	**D**	I	**R**	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the rotation direction

SOH	D	D	STX	D	I	R	X	X	X	ETX	BCC

X   setting number of rotation direction
               valid values   000 or 001

Answer of SSI 3001

ACK

Example: Rotation direction clockwise

SOH	D	D	STX	D	I	R	0	0	0	ETX	BCC

4.7.   *Scaling factor*

Read the setting of the scaling factor

SOH	D	D	STX	S	C	A	ETX	BCC

Answer of SSI 3001

STX	X	X	X	X	X	X	ETX	BCC

Set the scaling factor

SOH	D	D	STX	S	C	A	X	X	X	X	X	X	ETX	BCC

X   setting scaling factor
               valid values   000001 to 999999

Answer of SSI 3001

ACK

Example: Scaling factor 1.56748

SOH	D	D	STX	S	C	A	1	5	6	7	4	8	ETX	BCC

Remark: Do not transfer the decimal point !

4.8.   *Offset value*

Read the setting of offset value

SOH	D	D	STX	O	F	F	ETX	BCC

Answer of SSI 3001

STX	V or X	X	X	X	X	X	ETX	BCC

Set the offset value

SOH	D	D	STX	O	F	F	V or X	X	X	X	X	X	ETX	BCC

V   sign   positive: ' ' (ASCII 20h)
                                        negative: '-' (ASCII 2Dh)
X   offset value
           valid values   -99999 to 999999

Answer of SSI 3001

ACK

Example: Offset value = 2.00000

SOH	D	D	STX	O	F	F	2	0	0	0	0	0	ETX	BCC

Remark: Do not transfer the decimal point !

4.9. *Decimal points*

Read the setting of decimal point

SOH	D	D	STX	A	N	K	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the decimal point of SSI 3001

SOH	D	D	STX	A	N	K	X	X	X	ETX	BCC

X   setting number of decimal point
           valid values   000 to 005

Answer of SSI 3001

ACK

Example: Number of decimal point = 2

SOH	D	D	STX	A	N	K	0	0	2	ETX	BCC

4.10. Data source of the display

Read the setting of data source for the display

SOH	D	D	STX	A	N	D	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the data source for the display

SOH	D	D	STX	A	N	D	X	X	X	ETX	BCC

X   setting number of data source for the display
                       valid values   000 to 003

Answer of SSI 3001

ACK

Example: Data source for the display = 0 (Encoder value)

SOH	D	D	STX	A	N	D	0	0		ETX	BCC

4.11. Reset time of the MIN/MAX-memory

Read the setting of reset time for MIN/MAX-memory

SOH	D	D	STX	R	S	Z	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the reset time of MIN/MAX-memory

SOH	D	D	STX	R	S	Z	X	X	X	ETX	BCC

X   setting reset time in seconds
                       valid values   000 to 100

Answer of SSI 3001

ACK

Example: Reset tiome of MIN/MAX-memory = 10 (10 seconds)

SOH	D	D	STX	R	S	Z	0	1	0	ETX	BCC

4.12. Function of digital user input 1

Read the setting for the digital user input 1

SOH	D	D	STX	F	D	1	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the function for the digital user input 1

SOH	D	D	STX	F	D	1	X	X	X	ETX	BCC

X   setting number of the function for the digital user input 1
           valid values   000 to 010

Answer of SSI 3001

ACK

Example: Function of the digital user input 1 = 7 (display test)

SOH	D	D	STX	F	D	1	0	0	7	ETX	BCC

4.13. Function of digital user input 2

Read the setting for the digital user input 2

SOH	D	D	STX	F	D	2	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the function for the digital user input 2

SOH	D	D	STX	F	D	2	X	X	X	ETX	BCC

X   setting number of the function for the digital user input 2
           valid values   000 to 010

Answer of SSI 3001

ACK

Example: Function of digital user input 2 = 2 (Taring of encoder)

SOH	D	D	STX	F	D	2	0	0	2	ETX	BCC

4.14. Function of push button '*'

Read the setting of function for the push button ✳

SOH	D	D	STX	F	T	*	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the function of the push button ✳

SOH	D	D	STX	F	T	*	X	X	X	ETX	BCC

X   setting number of function for push button ✳
           valid values   000 to 005

Answer of SSI 3001

ACK

Example: Function of push button ✳ = 1 (Reset the MIN/MAX-memory)

SOH	D	D	STX	F	T	*	0	0	1	ETX	BCC

4.15. Function of push button '-'

Read the setting of function for the push button ⬇

SOH	D	D	STX	F	T	-	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the function of push button ⬇

SOH	D	D	STX	F	T	-	X	X	X	ETX	BCC

X   setting number of function for push button ⬇
            valid values   000 to 006

Answer of SSI 3001

ACK

Example: Function of push button ⬇ = 3 (display the MIN value)

SOH	D	D	STX	F	T	-	0	0	3	ETX	BCC

4.16. Function of push button '+'

Read the setting of push button ⬆

SOH	D	D	STX	F	T	+	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the function of push button ⬆

SOH	D	D	STX	F	T	+	X	X	X	ETX	BCC

X   setting number of function for push button ⬆
            valid values   000 to 006

Answer of SSI 3001

ACK

Example: Function of push button ⬆ = 2 (display the MAX value)

SOH	D	D	STX	F	T	+	0	0	2	ETX	BCC

4.17. Access-code

Read the setting of access-code

SOH	D	D	STX	C	O	D	ETX	BCC

Answer of SSI 3001

STX	V	X	X	X	X	X	ETX	BCC

Setting the access-code

SOH	D	D	STX	**C**	**O**	**D**	V	0	0	X	X	X	ETX	BCC

V   sign   positive: ' ' (ASCII 20h)
X   access-code
              valid values   00000 to 00999

Answer of SSI 3001

ACK

Example: Access-code = 123

SOH	D	D	STX	**C**	**O**	**D**		0	0	1	2	3	ETX	BCC

5. Commands of alarm output level (P-02)

5.1. Commands of alarm output 1

5.1.1. Data source for alarm output 1

Read the setting of data source for the alarm output 1

SOH	D	D	STX	G	1	D	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the data source for the alarm output 1

SOH	D	D	STX	G	1	D	X	X	X	ETX	BCC

X   setting number of data source for the alarm output 1
                     valid values   000 to 004

Answer of SSI 3001

ACK

Example: Data source for alarm output 1 = 1 (Encoder value)

SOH	D	D	STX	G	1	D	0	0	1	ETX	BCC

5.1.2. Switching logic of alarm output 1

Read the setting of switching logic for the alarm output 1

SOH	D	D	STX	G	1	C	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the switching logic of alarm output 1

SOH	D	D	STX	G	1	C	X	X	X	ETX	BCC

X   setting number of switching logic for the alarm output 1
                     valid values   000 to 003

Answer of SSI 3001

ACK

Example: Switching logic of alarm output 1 = 1 (contact closed at high limit)

SOH	D	D	STX	G	1	C	0	0	1	ETX	BCC

5.1.3. Alarm point of alarm output 1

Read the setting of alarm point for alarm output 1

SOH	D	D	STX	G	1	W	ETX	BCC

Answer of SSI 3001

STX	V or X	X	X	X	X	X	ETX	BCC

Set the alarm point of alarm output 1

SOH	D	D	STX	G	1	W	V or X	X	X	X	X	X	ETX	BCC

V   sign   positive: ' ' (ASCII 20h)
                         negative: '-' (ASCII 2Dh)
X   alarm point
           valid values   -99999 to 999999

Answer of SSI 3001

ACK

Example: Alarm point of alarm output 1 = 2500

SOH	D	D	STX	G	1	W		0	0	2	5	0	0	ETX	BCC

5.1.4. Hysteresis of alram output 1

Read the setting of hysteresis for the alarm output 1

SOH	D	D	STX	G	1	H	ETX	BCC

Answer of SSI 3001

STX	X	X	X	X	X	X	ETX	BCC

Set the hysteresis of alarm output 1

SOH	D	D	STX	G	1	H	0	0	X	X	X	X	ETX	BCC

X   hysteresis
           valid values   000001 to 001000

Answer of SSI 3001

ACK

Example: Hysteresis of alarm output 1 = 100

SOH	D	D	STX	G	1	H	0	0	0	1	0	0	ETX	BCC

5.1.5. Release delay time of alarm output 1

Read the setting of release delay time for the alarm output 1

SOH	D	D	STX	G	1	F	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the release delay time of alarm output 1

SOH	D	D	STX	G	1	F	X	X	X	ETX	BCC

X   release delay time in seconds
           valid values   000 to 060

Answer of SSI 3001

ACK

Example: Release delay time of alarm output 1 = 0 (no release delay time)

SOH	D	D	STX	G	1	F	0	0	0	ETX	BCC

5.1.6. Operate delay time of alarm output 1

Read the setting of operate delay time for alarm output 1

SOH	D	D	STX	G	1	S	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the operate delay time of alarm output 1

SOH	D	D	STX	G	1	S	X	X	X	ETX	BCC

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X   operate delay time in seconds
                  valid values   000 to 0 60

Answer of SSI 3001

ACK

Example: Operate delay time of alarm output 1 = 12 (12 seconds)

SOH	D	D	STX	G	1	S	0	1	2	ETX	BCC

5.2.   Commands of alarm output 2

5.2.1. Data source for alarm output 2

Read the setting of data source for the alarm output 2

SOH	D	D	STX	G	2	D	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the data source for the alarm output 2

SOH	D	D	STX	G	2	D	X	X	X	ETX	BCC

X   setting number of data source for the alarm output 2
                  valid values   000 to 004

Answer of SSI 3001

ACK

Example: Data source for alarm output 2 = 1 (Encoder value)

SOH	D	D	STX	G	2	D	0	0	1	ETX	BCC

5.2.2. Switching logic of alarm output 2

Read the setting of switching logic for the alarm output 2

SOH	D	D	STX	G	2	C	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the switching logic of alarm output 2

SOH	D	D	STX	G	2	C	X	X	X	ETX	BCC

X   setting number of switching logic for the alarm output 1
                      valid values   000 to 003

Answer of SSI 3001

ACK

Example: Switching logic of alarm output 2 = 1 (contact closed at high limit)

SOH	D	D	STX	G	2	C	0	0	1	ETX	BCC

5.2.3. *Alarm point of alarm output 2*

Read the setting of alarm point for alarm output 2

SOH	D	D	STX	G	2	W	ETX	BCC

Answer of SSI 3001

STX	V or X	X	X	X	X	X	ETX	BCC

Set the alarm point of alarm output 2

SOH	D	D	STX	G	2	W	V or X	X	X	X	X	X	ETX	BCC

V   sign   positive: ' ' (ASCII 20h)
                                   negative: '-' (ASCII 2Dh)
X   alarm point
               valid values   -99999 to 999999

Answer of SSI 3001

ACK

Example: Alarm point of alarm output 2 = - 5000

SOH	D	D	STX	G	2	W	-	0	5	0	0	0	ETX	BCC

5.2.4. Hysteresis of alarm output 2

Read the setting of hysteresis for alarm output 2

SOH	D	D	STX	G	2	H	ETX	BCC

Answer of SSI 3001

STX	X	X	X	X	X	X	ETX	BCC

Set the hysteresis of alarm output 2

SOH	D	D	STX	G	2	H	0	0	X	X	X	X	ETX	BCC

X   hysteresis
               valid valuese   000001 to 001000

Answer of SSI 3001

ACK

<u>Example:</u> Hysteresis of alarm output 2 = 125

SOH	D	D	STX	G	2	H		0	0	1	2	5	ETX	BCC

5.2.5. Release delay time of alarm output 2

Read the setting of release delay time for alarm output 2

SOH	D	D	STX	G	2	F	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the release delay time of alarm output 2

SOH	D	D	STX	G	2	F	X	X	X	ETX	BCC

X   release delay time in seconds
               valid values   000 to 060

Answer of SSI 3001

ACK

Example: Release delay time of alarm output 2 = 5 (5 seconds)

SOH	D	D	STX	G	2	F	0	0	5	ETX	BCC

5.2.6. *Operate delay time of alarm output 2*

Read the setting of operate delay time for alarm output 2

SOH	D	D	STX	G	2	S	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the operate delay time of alarm output 2

SOH	D	D	STX	G	2	S	X	X	X	ETX	BCC

X   operate delay time in seconds
                  valid values   000 to 060

Answer of SSI 3001

ACK

Example: Operate delay time of alarm output 2 = 22 (22 seconds)

SOH	D	D	STX	G	2	S	0	2	2	ETX	BCC

5.3. Commands of alarm output 3

5.3.1. Data source for alarm output 3

Read the setting of data source for the alarm output 3

SOH	D	D	STX	G	3	D	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the data source for the alarm output 1

SOH	D	D	STX	G	3	D	X	X	X	ETX	BCC

X   setting number of data source for the alarm output 3
           valid values   000 to 004

Answer of SSI 3001

ACK

Example: Data source for alarm output 3 = 1 (Encoder value)

SOH	D	D	STX	G	3	D	0	0	1	ETX	BCC

5.3.2. Switching logic of alarm output 3

Read the setting of switching logic for the alarm output 1

SOH	D	D	STX	G	3	C	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the switching logic of alarm output 3

SOH	D	D	STX	G	3	C	X	X	X	ETX	BCC

X   setting number of switching logic for the alarm output 3
           valid values   000 to 003

Answer of SSI 3001

ACK

Example: Switching logic of alarm output 3 = 1 (contact closed at high limit)

SOH	D	D	STX	G	3	C	0	0	1	ETX	BCC

5.3.3. Alarm point of alarm output 3

Read the setting of alarm point for alarm output 3

SOH	D	D	STX	G	3	W	ETX	BCC

Answer of SSI 3001

STX	V or X	X	X	X	X	X	ETX	BCC

Set the alarm point of alarm output 3

SOH	D	D	STX	G	3	W	V or X	X	X	X	X	X	ETX	BCC

V	sign	positive: ' ' (ASCII 20h)
		negative: '-' (ASCII 2Dh)
X	alarm point	
	valid values	-99999 to 999999

Answer of SSI 3001

ACK

Example: Alarm point of alarm output 3 = 2500

SOH	D	D	STX	G	3	W		0	0	2	5	0	0	ETX	BCC

5.3.4. Hysteresis of alram output 3

Read the setting of hysteresis for the alarm output 3

SOH	D	D	STX	G	3	H	ETX	BCC

Answer of SSI 3001

STX	X	X	X	X	X	X	ETX	BCC

Set the hysteresis of alarm output 3

SOH	D	D	STX	G	3	H	0	0	X	X	X	X	ETX	BCC

X	hysteresis	
	valid values	000001 to 001000

Answer of SSI 3001

ACK

Example: Hysteresis of alarm output 3 = 100

SOH	D	D	STX	G	3	H	0	0	0	1	0	0	ETX	BCC

5.3.5. Release delay time of alarm output 3

Read the setting of release delay time for the alarm output 1

SOH	D	D	STX	G	3	F	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the release delay time of alarm output 1

SOH	D	D	STX	G	3	F	X	X	X	ETX	BCC

X   release delay time in seconds
           valid values   000 to 060

Answer of SSI 3001

ACK

Example: Release delay time of alarm output 3 = 0 (no release delay time)

SOH	D	D	STX	G	3	F	0	0	0	ETX	BCC

5.3.6. Operate delay time of alarm output 3

Read the setting of operate delay time for alarm output 3

SOH	D	D	STX	G	3	S	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the operate delay time of alarm output 3

SOH	D	D	STX	G	3	S	X	X	X	ETX	BCC

X operate delay time in seconds
valid values 000 to 0 60

Answer of SSI 3001

ACK

Example: Operate delay time of alarm output 3 = 12 (12 seconds)

SOH	D	D	STX	G	3	S	0	1	2	ETX	BCC

5.4. Commands of alarm output 4

5.4.1. Data source for alarm output 4

Read the setting of data source for the alarm output 4

SOH	D	D	STX	G	4	D	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the data source for the alarm output 4

SOH	D	D	STX	G	4	D	X	X	X	ETX	BCC

X setting number of data source for the alarm output 4
valid values 000 to 004

Answer of SSI 3001

ACK

Example: Data source for alarm output 4 = 1 (Encoder value)

SOH	D	D	STX	G	4	D	0	0	1	ETX	BCC

5.4.2. Switching logic of alarm output 4

Read the setting of switching logic for the alarm output 1

SOH	D	D	STX	G	4	C	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the switching logic of alarm output 4

SOH	D	D	STX	G	4	C	X	X	X	ETX	BCC

X   setting number of switching logic for the alarm output 4
valid values   000 to 003

Answer of SSI 3001

ACK

Example: Switching logic of alarm output 4 = 1 (contact closed at high limit)

SOH	D	D	STX	G	4	C	0	0	1	ETX	BCC

5.4.3. *Alarm point of alarm output 4*

Read the setting of alarm point for alarm output 4

SOH	D	D	STX	G	4	W	ETX	BCC

Answer of SSI 3001

STX	V or X	X	X	X	X	X	ETX	BCC

Set the alarm point of alarm output 4

SOH	D	D	STX	G	4	W	V or X	X	X	X	X	X	ETX	BCC

V   sign   positive: ' ' (ASCII 20h)
                                 negative: '-' (ASCII 2Dh)
X   alarm point
          valid values   -99999 to 999999

Answer of SSI 3001

ACK

Example: Alarm point of alarm output 4 = 2500

SOH	D	D	STX	G	4	W		0	0	2	5	0	0	ETX	BCC

5.4.4. Hysteresis of alram output 4

Read the setting of hysteresis for the alarm output 4

SOH	D	D	STX	G	4	H	ETX	BCC

Answer of SSI 3001

STX	X	X	X	X	X	X	ETX	BCC

Set the hysteresis of alarm output 4

SOH	D	D	STX	G	4	H	0	0	X	X	X	X	ETX	BCC

X   hysteresis
             valid values   000001 to 001000

Answer of SSI 3001

ACK

Example: Hysteresis of alarm output 4 = 100

SOH	D	D	STX	G	4	H	0	0	0	1	0	0	ETX	BCC

5.4.5. Release delay time of alarm output 4

Read the setting of release delay time for the alarm output 4

SOH	D	D	STX	G	4	F	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the release delay time of alarm output 1

SOH	D	D	STX	G	4	F	X	X	X	ETX	BCC

X   release delay time in seconds
             valid values   000 to 060

Answer of SSI 3001

ACK

Example: Release delay time of alarm output 4 = 0 (no release delay time)

SOH	D	D	STX	G	4	F	0	0	0	ETX	BCC

5.4.6. Operate delay time of alarm output 4

Read the setting of operate delay time for alarm output 4

SOH	D	D	STX	G	4	S	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the operate delay time of alarm output 1

SOH	D	D	STX	G	4	S	X	X	X	ETX	BCC

X   operate delay time in seconds
                valid values   000 to 0 60

Answer of SSI 3001

ACK

Example: Operate delay time of alarm output 4 = 12 (12 seconds)

SOH	D	D	STX	G	4	S	0	1	2	ETX	BCC

6. Commands of analog output level (P-03)

6.1. Data source for analog output

Read the setting of data source for the analog output

SOH	D	D	STX	D	A	D	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the data source of analog output

SOH	D	D	STX	D	A	D	X	X	X	ETX	BCC

X   setting number of data source for the analog output
                   valid values   000 to 003

Answer of SSI 3001

ACK

Example: Data source for analog output = 1 (MAX value)

SOH	D	D	STX	D	A	D	0	0	1	ETX	BCC

6.2. Configuration of analog output

Read the setting of configuration for analog output

SOH	D	D	STX	D	A	C	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the configuration of analog output

SOH	D	D	STX	D	A	C	X	X	X	ETX	BCC

X   setting number of configuration for the analog output
                   valid values   000 to 003

Answer of SSI 3001

ACK

Example: Configuration of analog output = 2 (0 to 20 mA)

SOH	D	D	STX	D	A	C	0	0	2	ETX	BCC

6.3. Display value for minimal analog output signal

Read the display value for minimal analog output signal

SOH	D	D	STX	D	A	A	ETX	BCC

Answer of SSI 3001

STX	V or X	X	X	X	X	X	ETX	BCC

Set the display value for minimal analog output signal

SOH	D	D	STX	D	A	A	V or X	X	X	X	X	X	ETX	BCC

V	sign	positive: ' ' (ASCII 20h)
		negative: '-' (ASCII 2Dh)
X	display value	
	valid values	-99999 to 999999

Answer of SSI 3001

ACK

Example: Display value for minimal analog output signal = -1000

SOH	D	D	STX	D	A	A	-	0	1	0	0	0	ETX	BCC

6.4. *Display value for maximal analog output signal*

Read the display value for the maximal analog output signal

SOH	D	D	STX	D	A	E	ETX	BCC

Answer of SSI 3001

STX	V or X	X	X	X	X	X	ETX	BCC

Set the display value for the maximal analog output signal

SOH	D	D	STX	D	A	E	V or X	X	X	X	X	X	ETX	BCC

V	sign	positive: ' ' (ASCII 20h)
		negative: '-' (ASCII 2Dh)
X	display value	
	valid values	-99999 to 999999

Answer of SSI 3001

ACK

Example: Display value for maximal analog output signale = 10000

SOH	D	D	STX	D	A	E	0	1	0	0	0	0	ETX	BCC

7. Commands of interface level (P-04)

7.1. Interface address

Read the address of the serial interface

SOH	D	D	STX	R	S	A	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the address of the serial interface

SOH	D	D	STX	R	S	A	X	X	X	ETX	BCC

X   address of the serial interface
                 valid values   0 to 31

Answer of SSI 3001

ACK

Example: interface address = 5

SOH	D	D	STX	R	S	A	0	0	5	ETX	BCC

7.2. Interface baud rate

Read the setting of baud rate for the serial interface

SOH	D	D	STX	R	S	B	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the baud rate of the serail interface

SOH	D	D	STX	R	S	B	X	X	X	ETX	BCC

X   setting number of baud rate for the serial interface
                 valid values   0 to 6

Answer of SSI 3001

ACK

Example: number of baudrate = 6 (19200 baud)

SOH	D	D	STX	R	S	B	0	0	6	ETX	BCC

7.3. *Serial interface transfer mode*

Read the transfer mode of the serial interface

SOH	D	D	STX	R	S	M	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set the transfer protocol of the serial interface

SOH	D	D	STX	R	S	M	X	X	X	ETX	BCC

X   Number of the transfer mode
                    valid values   000 bis 002

Answer of SSI 3001

ACK

Example: Number of the transfer mode = 0 (PC-Mode)

SOH	D	D	STX	R	S	M	0	0	0	ETX	BCC

7.4. *Timer for Terminal-Mode with timing*

Read the timer value

SOH	D	D	STX	R	T	T	ETX	BCC

Answer of SSI 3001

STX	V	0	X	X	X	X	ETX	BCC

Change timer

SOH	D	D	STX	R	T	T	V	0	X	X	X	X	ETX	BCC

V   sign   positiv: ' ' (ASCII 20h)
X   Timer (transfer cycle)
                    valid values   00000 bis 03600

Answer SSI 3001

ACK

Examplel: Timer (Transfer cycle = 60 sec

SOH	D	D	STX	**R**	**T**	**T**		0	0	0	6	0	ETX	BCC

7.5.   Data source for terminal mode

Read data source for terminal-mode

SOH	D	D	STX	**R**	**S**	**D**	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set data source of the serial interface

SOH	D	D	STX	**R**	**S**	**D**	X	X	X	ETX	BCC

X   Data source for terminal mode
                 valid values   000 bis 003

Answer SSI 3001

ACK

Example: Data source for terminal-mode = 1 (average value)

SOH	D	D	STX	**R**	**S**	**D**	0	0	1	ETX	BCC

7.6.   Handshake control for RS232-Schnittstelle

Read handshake control

SOH	D	D	STX	**R**	**S**	**H**	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Set handshake control

SOH	D	D	STX	**R**	**S**	**H**	X	X	X	ETX	BCC

X   Handshake control
                 valid values   000 bis 001

Answer of SSI 3001

ACK

Examplel: handshake control = 1 with handshake

SOH	D	D	STX	R	S	H	0	0	1	ETX	BCC

8.   *Error message* **NAK**

Reasons for a errot message

- command is unknown
- datas lies out of the valid value range
- datas are wrong (to short or to long)
- the instrument SSI 3001 is in the programming mode
  (Each command is receipt with a *NAK*, when the instrument is in the programming mode)

8.1.   *Error word register*

Read the error word register

SOH	D	D	STX	E	R	R	ETX	BCC

Answer of SSI 3001

STX	X	X	X	ETX	BCC

Explanation of error word register

Error word register	Significance
0	no error
10	command unknown
11	datas are wrong (to shortz)
12	datas are wrong (to long)
13	datas contains wrong signs
14	datas lies out of the valid value range
15	wrong control byte

A error word be preserved as long as the error word register is read through. After the reading the error word register is cleared.

9.   Command overview

AND	read or set the data source for the display
ANK	read or set the decimal points
BIT	read or set the resolution (bits) of the connetced encoder
CLK	read or set the clock of the master-mode
COD	read or set the access-code for the programming
DAA	read or set the display value for the minimum analog output signal
DAC	read or set the configuration of the analog output
DAD	read or set the data source for the analog output
DAE	read or ser the display value for the maximum analog output signal
DAT	read the data of production
DIR	read or set rotation direction
ERR	read the error word register
FD1	read or set the function of the digital user input 1
FD2	read or set the function of the digital user input 2
FT*	read or set the function of push button " ***** "
FT-	read or set the function of push button " **-** "
FT+	read or set the function of push button " **+** "
GBR	read or set the ouput code of the connected encoder
GER	read the type designation
GRS	carried out the main reset
G1C	read or set the switching logic of alarm output 1
G1D	read or set the data source for alarm output 1
G1F	read or set the release delay time of alarm output 1
G1H	read or set the hysteresis of alarm output 1
G1S	read or set the operate delay time of alarm output 1
G1W	read or set the alarm point of alarm output 1

G2C	read or set the switching logic of alarm output 2
G2D	read or set the data source for alarm output 2
G2F	read or set the release delay time of alarm output 2
G2H	read or set the hysteresis of alarm output 2
G2S	read or set the operate delay time of alarm output 2
G2W	read or set the alarm point of alarm output 2
G3C	read or set the switching logic of alarm output 3
G3D	read or set the data source for alarm output 3
G3F	read or set the release delay time of alarm output 3
G3H	read or set the hysteresis of alarm output 3
G3S	read or set the operate delay time of alarm output 3
G3W	read or set the alarm point of alarm output 3
G4C	read or set the switching logic of alarm output 4
G4D	read or set the data source for alarm output 4
G4F	read or set the release delay time of alarm output 4
G4H	read or set the hysteresis of alarm output 4
G4S	read or set the operate delay time of alarm output 4
G4W	read or set the alarm point of alarm output 4
MAX	read the MAX value
MIN	read the MIN value
MSB	read or set the mode master or the mode slave
MSW	read the MEASURED value
NUL	read or set the zero defination
OFF	read or set the offset value
RSA	read or set the interface address
RSB	read or set the baud rate of the interface
RSD	read or set the data source for terminal mode
RSH	read or set the handshake control
RSM	read or set the transfer mode of the serial interface

RTT	read or set the timer value for the terminal mode
RSZ	read or set the reset time of MIN/MAX-memory
SCA	read or set the scaling factor
SRN	read or set the number of production
VER	read the software version

10. Notice

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