



Communication signals between screwdriver control (SGS20x0) and higher order control (MMI)

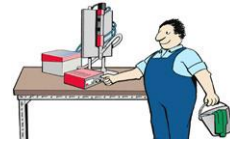
Profibus-DP



8 Description of the controller

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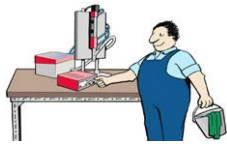
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STÖGER AUTOMATION GmbH points out that this interface description is not binding and may differ depending on the individual application.



8 Description of the controller

1. Input signals to SGS20x0

1.1. Start

	Function	Format
Start	eStart	0/1

Starts the screwing sequence.

The screwing sequence can be started when:

- automatic mode is selected
- no faults are active
- a valid screwing program was selected with the program selection
- the screwdriver is loaded or unloaded in accordance with the selected screwing program.

1.2. Program selection

	Function	Format	
Program selection Bit 0	eProgBit0	0/1	PG-No. +1
Program selection Bit 1	eProgBit1	0/1	PG-No. +2
Program selection Bit 2	eProgBit2	0/1	PG-No. +4
Program selection Bit 3	eProgBit3	0/1	PG-No. +8

eProgBit0 ... eProgBit3 preselects the screwing program for the next screwing cycle in binary form. A program number < 1 or > 15 is invalid.



2. Output signals from SGS20x0

2.1. Fault

	Function	Format
Fault	aStoer	0/1

“aStoer” is switched on if there is a fault on the unit. As soon as the fault has been resolved, the output is switched off.

2.2. Homeposition

	Function	Format
Homeposition	aGst	0/1

“aGst” is switched on when the stroke of the spindle has reached the predetermined position in which it can be moved transversely to the workpiece (robot, positioning system) or the workpiece transversely to the screwdriver (production line with workpiece carriers). Otherwise collisions might happen!

2.3. Ready

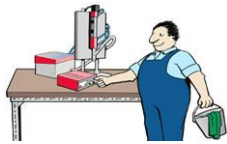
	Function	Format
Ready	aSb	0/1

“aSb” is switched on when the spindle can be started by switching on the customer input “eStart”.

2.4. OK

	Function	Format
OK	aIO	0/1

“aIO” is switched off as soon as a cycle is started and is switched on again when the cycle is finished and the screw connection is OK.



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2.5. NOK

	Function	Format
NOK	aNIO	0/1

“aNIO” is switched off as soon as a cycle is started and is switched on again when the cycle has ended and the screw connection is NOT OK.

2.6. Fill level control

	Function	Format
Fill level control	aFSK	0/1

“aFSK” is switched on when the min. fill level in the feed device goes below the default setting.

2.7. Torque OK

	Function	Format
Torque OK	aM_IO	0/1

“aM_IO” is switched off as soon as the screwing process is started and is switched on again when the screwing process is ended and the default settings for the torque have been observed.

2.8. Depth OK

	Function	Format
Depth OK	aT_IO	0/1

“aT_IO” is switched off as soon as the screwing process is started and is switched on again when the screwing process is ended and the default settings for the depth have been observed.

**2.9. Time monitoring OK**

	Function	Format
Time monitoring OK	aZ_IO	0/1

“aZ_IO” is switched off as soon as the screwing process is started and is switched on again when the screwing process is ended and the default settings for time monitoring have been observed.

2.10. Screw measurement

	Function	Format
SM Bit0	aSmBit0	0/1
SM Bit1	aSmBit1	0/1

“aSmBit0 .. aSmBit1” displays in binary code with which screw the screwdriver is loaded.

2.11. Status

	Function	Format
Status	aSts	0...255

“aSts” displays the State of the Spindle.

2.12. Result

	Function	Format
Result	aErg	0...255

“aErg” displays the Result.

2.13. Time

	Function	Format
Time	aZ	-32768 .. 32767

“aZ” displays the duration of the screwing process in ms. As soon as the OK or NOK signal is active, the valid value is entered, otherwise 0 is entered in the variable.



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3. Profibus-DP-connection

3.1. Properties of DP-Slave

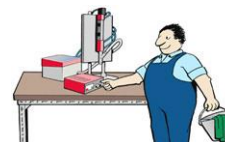
GSD – File:	si0818E.gsd
DP slave type:	EM1242-5
Transmission rate:	12Mbit/s
Profile:	DP

Table 1 Properties of DP slave

3.2. Node configuration Profibus master

DP code	Designation	
128	2 Byte output data	Input data SR1
64	8 Byte input data	Output data SR1
128	2 Byte output data	Input data SR2
64	8 Byte input data	Output data SR2

Table 2 Node configuration Profibus master



3.3. Input signals to SGS20x0

Signal designation	Function	Data-type	Format	Address Spindle 1	Address Spindle 2	Description
Start	eStart	Bool	0/1	I10.0	I2.0	s. ref.: 1.1
Programselection Bit 0	eProgBit0	Bool	0/1	I0.1	I2.1	s. ref.: 1.2
Programselection Bit 1	eProgBit1	Bool	0/1	I0.2	I2.2	s. ref.: 1.2
Programselection Bit 2	eProgBit2	Bool	0/1	I0.3	I2.3	s. ref.: 1.2
Programselection Bit 3	eProgBit3	Bool	0/1	I0.4	I2.4	s. ref.: 1.2

Table 3 Input signals to SGS20x0 in Profibus-DP

3.4. Output signals from SGS20x0

Signal designation	Function	Data-type	Format	Address Spindle 1	Address Spindle 2	Description
Fault	aStoer	Bool	0/1	O0.0	O8.0	s. ref.: 2.1
Home position	aGst	Bool	0/1	O0.1	O8.1	s. ref.: 2.2
Ready	aSb	Bool	0/1	O0.2	O8.2	s. ref.: 2.3
OK	aIO	Bool	0/1	O0.3	O8.3	s. ref.: 2.4
NOK	aNIO	Bool	0/1	O0.4	O8.4	s. ref.: 2.5
Fill level control	aFSK	Bool	0/1	O0.5	O8.5	s. ref.: 2.6
Res		Bool	0/1	O0.6	O8.6	
Res		Bool	0/1	O0.7	O8.7	
Torque OK	aM_IO	Bool	0/1	O1.0	O9.0	s. ref.: 2.7
Depth OK	aT_IO	Bool	0/1	O1.1	O9.1	s. ref.: 2.8
Res		Bool	0/1	O1.2	O9.2	
Time monitoring OK	aZ_IO	Bool	0/1	O1.3	O9.3	s. ref.: 2.9
SM Bit0	aSmBit0	Bool	0/1	O1.4	O9.4	s. ref.: 2.10
SM Bit1	aSmBit1	Bool	0/1	O1.5	O9.5	s. ref.: 2.10
Res		Bool	0/1	O1.6	O9.6	
Res		Bool	0/1	O1.7	O9.7	
Status	aSts	Byte	0..255	O2	O10	s. ref.: 2.11
Result	aErg	Byte	0..255	O3	O11	s. ref.: 2.12
Time	aT	Int	-32768..32767	O4	O12	s. ref.: 2.13
Res		Int	-32768..32767	O6	O14	

Table 4 Output signals from SGS20x0 in Profibus-DP



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