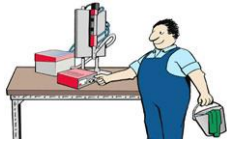




Communication signals between screwdriver control (MCS4100) and higher order control (MMI)

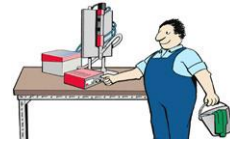
Digital I/O



8 Description of the controller

Table of contents

1.	Input signals to MCS4100	4
1.1.	Start	4
1.2.	Program selection.....	4
1.3.	Screw selection.....	5
1.4.	Acknowledge fault	5
1.5.	Request home position	5
1.6.	Programmable Customer Inputs	5
2.	Output signals from MCS4100	6
2.1.	Fault	6
2.2.	Homeposition	6
2.3.	Ready.....	6
2.4.	OK	6
2.5.	NOK.....	7
2.6.	Fill level control	7
2.7.	Torque OK.....	7
2.8.	Depth OK	7
2.9.	Angle OK	7
2.10.	Time monitoring OK	7
2.11.	Screw measurement.....	7
2.12.	Torque	8
2.13.	Depth	8
2.14.	Angle.....	8
2.15.	Time	8
3.	I/O - connection.....	9
3.1.	Plug: Staf14.....	9
3.2.	Plug: Staf20.....	10
	Table directory	10



Copyright ©

STÖGER AUTOMATION GmbH

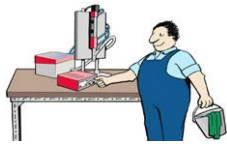
Gewerbering am Brand 1, 82549 Königsdorf, Germany

Tel: +49 8179 / 99 767-0

Fax: +49 8179 / 99 767-50

This document is protected by copyright, all rights reserved. It may not be copied in part or in whole, without the express, written permission of STÖGER AUTOMATION GmbH

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 MCS4100

1.1. Start

	Function	Format
Start	eStart	0/1

Starts the screwing sequence.

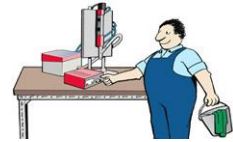
The screwing sequence can be started when:

- 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.

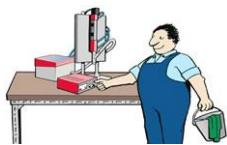


- 1.3. Screw selection
 Only with BUS connection or special model.

- 1.4. Acknowledge fault
 Only with BUS connection or special model.

- 1.5. Request home position
 Only with BUS connection or special model.

- 1.6. Programmable Customer Inputs
 Only with BUS connection or special model.



8 Description of the controller

2. Output signals from MCS4100

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.

**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

Only with BUS connection or special model.

2.8. Depth OK

Only with BUS connection or special model.

2.9. Angle OK

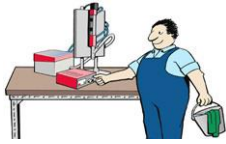
Only with BUS connection or special model.

2.10. Time monitoring OK

Only with BUS connection or special model.

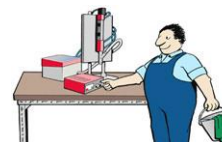
2.11. Screw measurement

Only with BUS connection or special model.



8 Description of the controller

- 2.12. Torque
Only with BUS connection or special model.
- 2.13. Depth
Only with BUS connection or special model.
- 2.14. Angle
Only with BUS connection or special model.
- 2.15. Time
Only with BUS connection or special model.



3. I/O - connection

Communication with digital customer I/O

3.1. Plug: Staf14

Signal	Function	Signal-direction			Plug	Pin	Description
+24V	Supply KDE	A	┐		0X200/	1	
0V	Gnd. KDE				0X200/	2	
Potential free	Supply KDA	E		┐	0X200/	3	control voltage of customer controller
Start	eStart	E	┐		0X200/	4	s. ref.: 1.1
Program selection Bit 0	eProgBit0	E	┐		0X200/	5	s. ref.: 1.2
Program selection Bit 1	eProgBit1	E	┐		0X200/	6	s. ref.: 1.2
Program selection Bit 2	eProgBit2	E	┐		0X200/	7	s. ref.: 1.2
Program selection Bit 3	eProgBit3	E	┐		0X200/	8	s. ref.: 1.2
Fault	aStoer	A		┐	0X200/	9	s. ref.: 2.1
Home position	aGst	A		┐	0X200/	10	s. ref.: 2.2
Ready	aSb	A		┐	0X200/	11	s. ref.: 2.3
OK	aIO	A		┐	0X200/	12	s. ref.: 2.4
NOK	aNIO	A		┐	0X200/	13	s. ref.: 2.5
Fill level control	aFSK	A		┐	0X200/	14	s. ref.: 2.6

Table 1 I/O's of MCS4100, digital, with plug Staf14



8 Description of the controller

3.2. Plug: Staf20

Signal	Function	Signal-direction			Plug	Pin	Description
+24V	Supply KDE	O	┐		0X200/	1	
0V	Gnd. KDE				0X200/	2	
Potential free	Supply KDA	I		┐	0X200/	3	control voltage of customer controller
Start	eStart	I	┐		0X200/	4	s. ref.: 1.1
Program selection Bit 0	eProgBit0	I	┐		0X200/	5	s. ref.: 1.2
Program selection Bit 1	eProgBit1	I	┐		0X200/	6	s. ref.: 1.2
Program selection Bit 2	eProgBit2	I	┐		0X200/	7	s. ref.: 1.2
Program selection Bit 3	eProgBit3	I	┐		0X200/	8	s. ref.: 1.2
	eRes1	I	┐	┐		9	
	eRes2	I	┐	┐		10	
	eRes3	I	┐	┐		11	
Fault	aStoer	O		┐	0X200/	12	s. ref.: 2.1
Home position	aGst	O		┐	0X200/	13	s. ref.: 2.2
Ready	aSb	O		┐	0X200/	14	s. ref.: 2.3
OK	aIO	O		┐	0X200/	15	s. ref.: 2.4
NOK	aNIO	O		┐	0X200/	16	s. ref.: 2.5
	aRes1	O		┐		17	
	aRes2	O		┐		18	
	aRes3	O		┐		19	
Fill level control	aFSK	O		┐	0X200/	20	s. ref.: 2.6

Table 2 I/O's of MCS4100, digital, with plug Staf20

Table directory

Table 1 I/O's of MCS4100, digital, with plug Staf14.....	9
Table 2 I/O's of MCS4100, digital, with plug Staf20.....	10