

This interface description is not binding and may differ depending on the individual application.

1. Digital interface between screwdriver control and higher order control (MMI / Optional)

- Input signals screwdriver control
- Output signals screwdriver control
- Digital I/O connection

1.1 Input signals

1.1.1 Start screwdriver

	Function
Start	eStart

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.

1.1.2 Program selection

	Function	
Program selection Bit 0	eProgBit0	PG no. +1
Program selection Bit 1	eProgBit1	PG no. +2
Program selection Bit 2	eProgBit2	PG no. +4
Program selection Bit 3	eProgBit3	PG no. +8

eProgBit0 ... eProgBit3 pre-selects the screwing program for the next screwing cycle in binary form.

A program number < 1 or >15 is invalid.

1.1.3 Screw selection

Only with BUS connection or special model

1.1.4 Acknowledge fault

Only with BUS connection or special model

1.1.5 Request home position

Only with BUS connection or special model

1.2 Output signals

1.2.1 *Fault*

	Function
Fault	aStoer

aStoer is switched on when there is a fault on the screwdriver.
As soon as the fault has been eliminated, the output is switched off.

1.2.2 *Home position*

	Function
Home position	aGst

aGst is switched on when

- The strokes of the screwdriver have reached the pre-defined position in which it is itself at right angles to the work piece (robot, positioning system) or
- the work piece can be moved at right angles to the screwdriver (production line with work piece carriers).

1.2.3 *Ready*

	Function
Ready	aSb

aSb is switched on when the screwdriver can be started by switching on the customer's input eStart.

1.2.4 *OK*

	Function
OK	aIO

aIO is

- switched off as soon as the screwing process is started.
- switched on again when the screwing process is ended and the screw connection is OK.

1.2.5 *NOK*

	Function
NOK	aNIO

aNIO is

- switched off as soon as the screwing process is started.
- switched on again when the screwing process is ended and the screw connection is NOT OK.

1.2.6 *Fill level control*

	Function
Fill level control	aFSK

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

1.2.7 *Torque OK*

Only with BUS connection or special model

1.2.8 *Depth OK*

Only with BUS connection or special model

1.2.9 *Angle OK*

Only with BUS connection or special model

1.2.10 *Time monitoring OK*

Only with BUS connection or special model

1.2.11 *Screw measurement*

Only with BUS connection or special model

1.2.12 *Torque*

Only with BUS connection or special model

1.2.13 *Depth*

Only with BUS connection or special model

1.2.14 *Angle*

Only with BUS connection or special model

1.2.15 *Time*

Only with BUS connection or special model

2. **Digital I/O connection**

Communication with digital customer I/O

2.1 **Input and output signals of the screwdriver control**

2.1.1 *Plug: Staf14*

Signal	Function	direction		Plug	Pin	description
+24V	Supply	A	□	0X200/	1	

	KDE					
0V	Gnd KDE				0X200/ 2	
Potential free	Supply KDA	E			0X200/ 3	control voltage of customer controller
Start	eStart	E			0X200/ 4	see section: 1.1.1
Program selection Bit 0	eProgBit0	E			0X200/ 5	see section: 1.1.2
Program selection Bit 1	eProgBit1	E			0X200/ 6	
Program selection Bit 2	eProgBit2	E			0X200/ 7	
Program selection Bit 3	eProgBit3	E			0X200/ 8	
Fault	aStoer	A			0X200/ 9	see section: 1.2.1
Home position	aGst	A			0X200/ 10	see section: 1.2.2
Ready	aSb	A			0X200/ 11	see section: 1.2.3
OK	aIO	A			0X200/ 12	see section: 1.2.4
NOK	aNIO	A			0X200/ 13	see section: 1.2.5
Fill level control	aFSK	A			0X200/ 14	see section: 1.2.6

Table 1: I/O, digital, with plug Staf14

2.1.2 Plug: Staf20

Signal	Function	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	see section: 1.1.1
Program selection Bit 0	eProgBit0	E		0X200/	5	see section: 1.1.2
Program selection Bit 1	eProgBit1	E		0X200/	6	
Program selection Bit 2	eProgBit2	E		0X200/	7	
Program selection Bit 3	eProgBit3	E		0X200/	8	
	eRes1	E		0X200/	9	
	eRes2	E		0X200/	10	
	eRes3	E		0X200/	11	
Fault	aStoer	A		0X200/	12	see section: 1.2.1
Home position	aGst	A		0X200/	13	see section: 1.2.2
Ready	aSb	A		0X200/	14	see section: 1.2.3
OK	aIO	A		0X200/	15	see section: 1.2.4
NOK	aNIO	A		0X200/	16	see section: 1.2.5
	aRes1	A		0X200/	17	
	aRes2	A		0X200/	18	
	aRes3	A		0X200/	19	
Fill level control	aFSK	A		0X200/	20	see section: 1.2.6

Table 2: I/O, digital, with plug Staf20

3. List of tables

Table 1: I/O, digital, with plug Staf14

4

Table 2: I/O, digital, with plug Staf20

4

4. List of contents

1. DIGITAL INTERFACE BETWEEN SCREWDRIVER CONTROL AND HIGHER ORDER CONTROL (MMI / OPTIONAL).....	1
1.1 INPUT SIGNALS	1
1.1.1 Start screwdriver.....	1
1.1.2 Program selection.....	1
1.1.3 Screw selection.....	1
1.1.4 Acknowledge fault.....	1
1.1.5 Request home position	1
1.2 OUTPUT SIGNALS	2
1.2.1 Fault.....	2
1.2.2 Home position.....	2
1.2.3 Ready	2
1.2.4 OK.....	2
1.2.5 NOK	2
1.2.6 Fill level control.....	3
1.2.7 Torque OK	3
1.2.8 Depth OK.....	3
1.2.9 Angle OK.....	3
1.2.10 Time monitoring OK	3
1.2.11 Screw measurement	3
1.2.12 Torque.....	3
1.2.13 Depth.....	3
1.2.14 Angle.....	3
1.2.15 Time	3
2. DIGITAL I/O CONNECTION.....	3
2.1 INPUT AND OUTPUT SIGNALS OF THE SCREWDRIVER CONTROL	3
2.1.1 Plug: Staf14	3
2.1.2 Plug: Staf20	4
3. LIST OF TABLES	4
4. LIST OF CONTENTS.....	5