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

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

- Input signals screwdriver control
- Output signals screwdriver control
- EtherNetIP connection

1.1 Input signals

1.1.1 Start screwdriver

	Function	EtherNetIP	Format
Start	eStart	X	0/1

Starts the screwing sequence
The screwing sequence can be started when

- automatic mode is selected.
- no faults are active.
- the screwdriver is loaded.

1.1.2 Selection

	Function	
Selection Bit 0	eProgBit0	PG no. +1
Selection Bit 1	eProgBit1	PG no. +2
Selection Bit 2	eProgBit2	PG no. +4
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.

1.2 Output signals

1.2.1 Fault

	Function	EtherNetIP	Format
Fault	aStoer	X	0/1

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	EtherNetIP	Format
Home position	aGst	X	0/1

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 workpiece (robot, positioning system) or
- the workpiece can be moved at right angles to the screwdriver (production line with workpiece carriers).

1.2.3 Ready

	Function	EtherNetIP	Format
Ready	aSb	X	0/1

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

1.2.4 OK

	Function	EtherNetIP	Format
OK	aIO	X	0/1

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	EtherNetIP	Format
NOK	aNIO	X	0/1

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	EtherNetIP	Format
Fill level control	aFSK	X	0/1

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

1.2.7 Automatic Mode

	Function	Bus	Format
Automatic Mode	aAuto	X	0/1

„aAuto" is activ when the controller is running in the automatic mode.

1.2.8 Torque OK

	Function	EtherNetIP	Format
Torque OK	aM_IO	X	0/1

aM_IO is

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

1.2.9 Depth OK

	Function	EtherNetIP	Format
Depth OK	aT_IO	X	0/1

aT_IO is

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

1.2.10 Time monitoring OK

	Function	EtherNetIP	Format
Time monitoring OK	aZ_IO	X	0/1

aZ_IO is

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

1.2.11 Screw measurement

	Function	EtherNetIP	Format
SM Bit0	aSmBit0	X	0/1
SM Bit1	aSmBit1	X	0/1
SM Bit2	aSmBit2	X	0/1

aSmBit0 .. aSmBit2 displays in binary code with which screw the screwdriver is loaded.

1.2.12 State

	Function	EtherNetIP	Format
State	aSts	X	0... 255

aSts shows the State of the spindle.

1.2.13 Result

	Function	EtherNetIP	Format
Result	aErg	X	0…255

aErg shows the Result of the screw setting.

1.2.14 Time

	Function	EtherNetIP	Format
Time	aZ	X	-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.

2. EtherNetIP connection

2.1 Properties of EtherNetIP-Slave:

EDS – Datei:	
- für Anybus X-gateway mit Ethernet/IP interface card software Version 1.xx.	EDS_ABS_EIP_V_1_9.eds
- für Anybus X-gateway mit Ethernet/IP	EDS_ABS_EIP_V_2_01.eds

interface card software Version 2.xx Die Lieferung von Version 2.xx erfolgte ab September 2009	
Input I/O data size (bytes):	##
Output I/O data size (bytes):	##

Tabelle 1: Properties of EtherNetIP-Slave

2.2 Input signals of the screwdriver control

Signal designation	Function	Data type	Format	Addr. Spindle 1	Addr. Spindle 2	Description
Status Gateway		Word	0000 … FFFF	0	-	
Start	eStart	bool	0/1	2.0	10.0	see section: 1.1.1
Selection Bit 0	eProgBit0	bool	0/1	2.1	10.1	see section: 1.1.2
Selection Bit 1	eProgBit1	bool	0/1	2.2	10.2	
Selection Bit 2	eProgBit2	bool	0/1	2.3	10.3	
Selection Bit 3	eProgBit3	bool	0/1	2.4	10.4	

Tabelle 2: Input signals of the screwdriver control EtherNetIP

2.3 Output signals of the screwdriver control

Signal designation	Function	Data type	Format	Addr. Spindle 1	Addr. Spindle 2	Description
Status Gateway		Word	0000 … FFFF	0	-	
Fault	aStoer	bool	0/1	2.0	10.0	see section: 1.2.1
Home position	aGst	bool	0/1	2.1	10.1	see section: 1.2.2
Ready	aSb	bool	0/1	2.2	10.2	see section: 1.2.3
OK	aIO	bool	0/1	2.3	10.3	see section: 1.2.4
NOK	aNIO	bool	0/1	2.4	10.4	see section: 1.2.5
Fill level control	aFSK	bool	0/1	2.5	10.5	see section: 1.2.6
Automatic mode	aAuto	bool	0/1	2.6	10.6	see section: 1.2.7
res		bool	0/1	2.7	10.7	
Torque OK	aM_IO	bool	0/1	3.0	11.0	see section: 1.2.8
Depth OK	aT_IO	bool	0/1	3.1	11.1	see section: 1.2.9
res		bool	0/1	3.2	11.2	
Time monitoring OK	aZ_IO	bool	0/1	3.3	11.3	see section: 1.2.10
SM Bit0	aSmBit0	bool	0/1	3.4	11.4	see section: 1.2.11
SM Bit1	aSmBit1	bool	0/1	3.5	11.5	
res		bool	0/1	3.6	11.6	
res		bool	0/1	3.7	11.7	
State	aSts	byte	0 … 255	4	12	see section: 1.2.12
Result	aErg	byte	0 … 255	5	13	see section: 1.2.13
Time	aZ	int	-32768 ... 32769	6	14	see section: 1.2.14
res	res	int	-32768 ... 32769	8	16	

Tabelle 3: Output signals of the screwdriver control EtherNetIP

3. List of tables

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