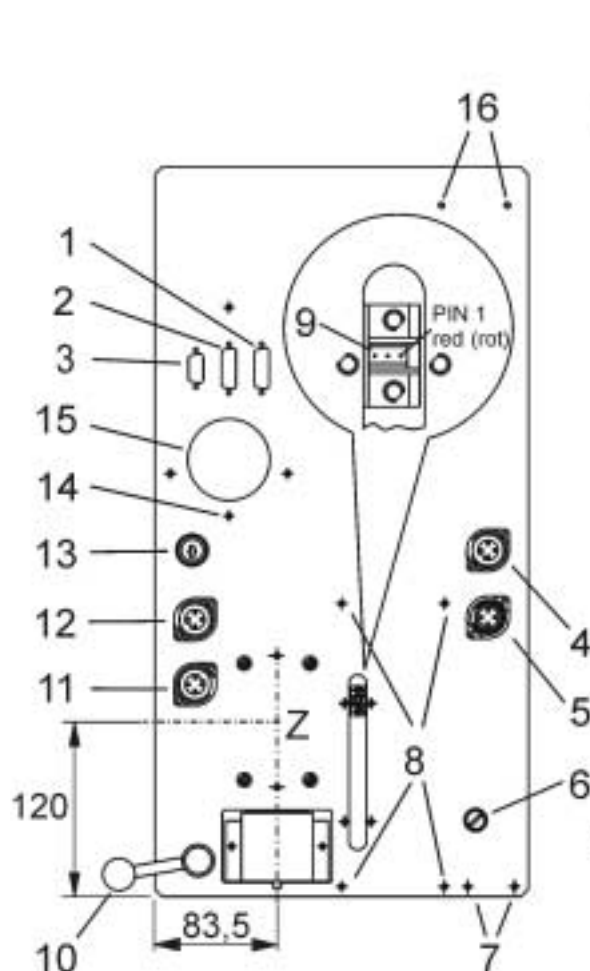
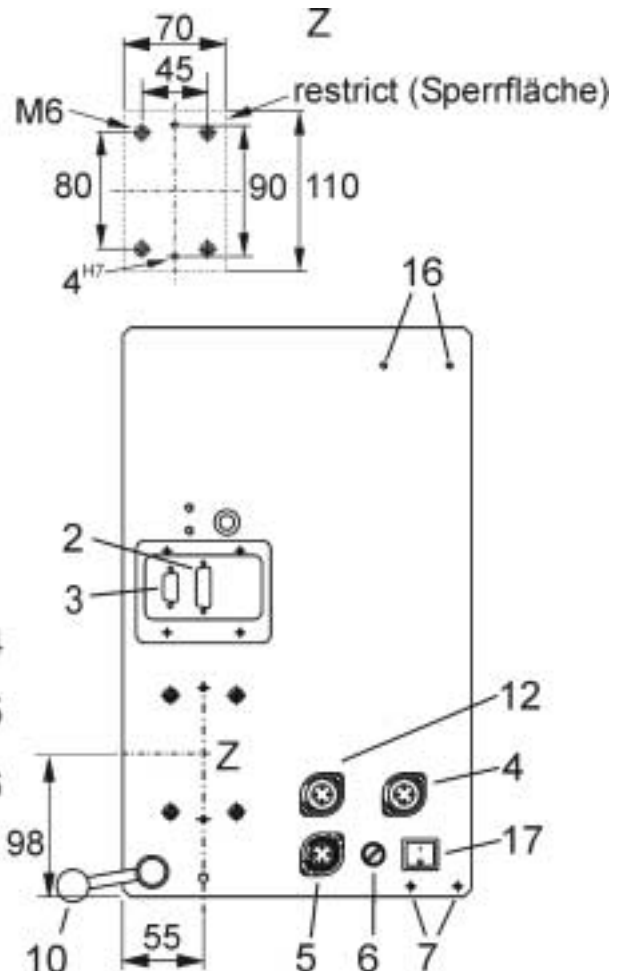


## Connection – Overview



**Fig. 2-4 Rear side of machine head  
megatap II**

- 1 Connection: ZAPtap
- 2 Receptacle: I/O user interface (SPS-I/O)
- 3 Receptacle: V24 (RS 232D) serial interface
- 4 Receptacle: lubrication unit (droptap and spraytap)
- 5 Receptacle: Main connection (230VAC / 50Hz)
- 6 megatapII 16A slow blow  
microtapII 3.15A slow blow
- 7 SME connection (droptap & spraytap)
- 8 ZAP connection (ZAPtap)



**Fig. 2-5 Rear side of machine head  
microtap II**

- 9 Receptacle: pressure sensor for ZAPtap  
PIN1 = red
- 10 Setting lever for retracting force  
(counter balance)
- 11 Receptacle: Operating lever
- 12 Receptacle: Foot switch for ZAPtap
- 13 Key switch (option)
- 14 Cable strap mounting screw
- 15 Air intake hole for cooling fan
- 16 signaltap connection
- 17 Main switch

## Interfaces

### Connection Examples

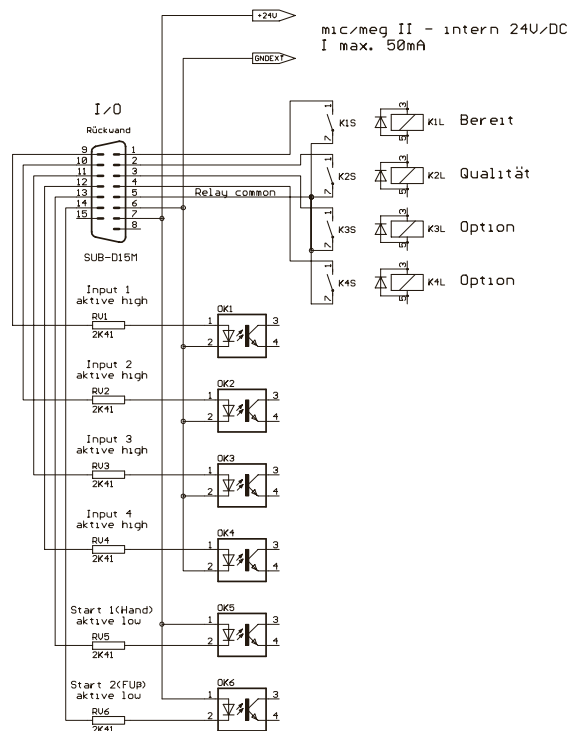
#### microtap & megatap / labtap

### Paralell interface I/O I/O user interface connector (SUB-D, 15-pins)

Galvanical isolated inputs/exits active with reference to external GND  
Current max. 0,1 A / 48 V

| PIN | Connection   |
|-----|--|
| 1   | Relay 1, contact A contact closed (machine ready)      |
| 9   | External input 1                                       |
| 2   | Relay 2, contact A contact closed, (quality OK)        |
| 10  | External input 2                                       |
| 3   | Relay 3, contact A contact open                        |
| 11  | External input 3                                       |
| 4   | Relay 4, contact A contact open                        |
| 12  | External input 4                                       |
| 5   | Common reference for relays 1; 2; 3; 4 (all contact B) |
| 13  | input start 1  |
| 6   | Ground external  |
| 14  | Input start 2 (Function like foot start)               |

### I/O wiring diagramm



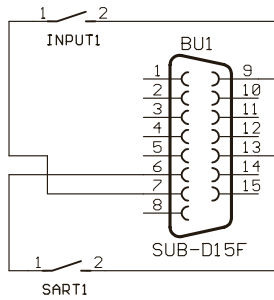
## Interfaces

### Connection Examples

#### microtap & megatap / labtap

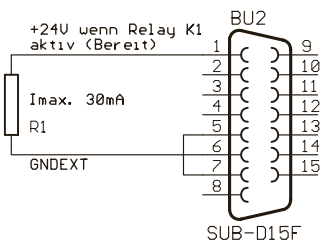
**Sample 1** Input signal (p.e. work piece recognition) and external start command

It is only possible to read input 1 ... 4 with Software-Option

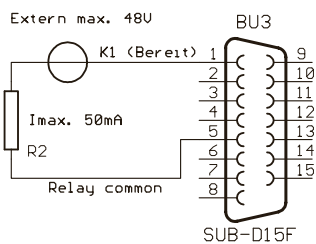


Start 2 same function in ZAP-Mode the pneumatic valve for the pneumatic Z-Axis spindle feed is actual

**Sample 2** Exit relay contact by internal power source



**Sample 3** Exit relay contact by external power resource



### Serial interface (RS232 / V24)

Connection RS232, SUB-D, 9-pin female (9600 baud, 8Bit, no parity, 1 stop-bit)

| PIN | Connection |
|-----|------------|
| 2   | 232 TX     |
| 3   | 232 RX     |
| 5   | 232 GND    |

## Interfaces

### Connection Examples

#### microtap & megatap / labtap

### Link between PC and thread tapping machine

The communications link between a PC and the thread tapping machine is realised via serial interface RS 232 and is based on ASCII code.  
9600 baud, 8 data bits, 1 stop bit, no parity bit

### Set of parameters forwarding to the machine

The set of parameter values is transferred as a block ASCII code  
Each parameter has a single character code followed by the symbol "=" selected parameter value  
The end of each parameter datum is coded by the characters "<CR>" (carriage return)  
The whole block has to be finished with >.. No parity sum created  
EXAMPLE: T=105<CR> (^= depth = 1,5 mm)  
The set of parameters includes the following parameters:

| Parameter       | Code | Range of values  |                                 |
|-----------------|------|------------------|---------------------------------|
| Depth           | 'T'  | 0.0 - 80.0 mm    | ( ^= 0 - 800)                   |
| Spindle speed   | 'N'  | 300 - 3000       | (300 - 3000 min <sup>-1</sup> ) |
| Fracture torque | 'B'  | 30 - 5000        | (30 - 5000 Ncm)                 |
| chip clearance  | 'E'  | 0 - 5            | ( 0 - 5 chip clearances)        |
| Lubricant pulse | 'L'  | 0 - 10           | (0-10)                          |
| Thread          | 'G'  | 0                | (0 = right hand)                |
|                 |      | 1                | (1 = left hand)                 |
| Reverse mode    | 'R'  | 0                | (0 = 100%)                      |
|                 |      | 1                | (1 = 200 %)                     |
|                 |      | 2                | (2 = 50 %)                      |
| Start- mode     | 'A'  | 0 = Start manuel | (Start MAN)                     |
|                 |      | 0 = Start Fz     | (Start Fz) (only with ZAP)      |
|                 |      | 1 = Auto         | (Autostart)                     |
|                 |      | 2 = auto + Sz    | (St Fz/Sz) (only with ZAP)      |
| Sz              | 'S'  | 0.0 - 70.0       | (0,0 - 70,0 mm)                 |
| DSz             | 'D'  | 0.0 - 10.0       | (0,0 - 10,0 mm)                 |
| Remote control  | 'H'  | 0                | (0 = Off)                       |
|                 |      | 1                | (1 = On)                        |
| Fz              | 'F'  | 0 - 10.0         | (0 - 10,0 N)                    |

### Feedback messages of the thread tapping machine

Upon completion of an operation cycle, the machine responds in the following manner:

- 'Y' cycle ready, no error
- 'X' error

In the event of an error, code "Q?" can be used to request an indication as to the nature of the error.

How to request for specific values

The request is done by sending the code for a specific value followed by "?" and "CR LF".

EXAMPLE: Q?<CR>

The thread tapping machine responds then with the same code and its current value.

EXAMPLE: Q=2<CR>

## Interfaces

### Connection Examples

#### microtap & megatap / labtap

### The following values are monitored exactly

| Value               | Code | Value range                                   |
|---------------------|------|---|
| Mz                  | 'M'  | 30 - 5000 (30 - 5000 Ncm)                     |
| Quality             | 'Q'  | see under "Quality"                           |
| depth               | 'T'  | 0.0 - 80.0 ( ^= 0 - 800) (0,0 – 80,0 mm)      |
| Reverse mode        | 'R'  | 0 (0 = 100%)<br>1 (1 = 200 %)<br>2 (2 = 50 %) |
| Sz                  | 'S'  | 0.0 - 70.0 (0,0 – 70,0 mm)                    |
| Mz (tapping torque) | 'C'  | 0 – 5000 (^= 0 – 700)                         |

After response "Y" the tapping torque "Mz" is monitored (machine ready, no error)

### Quality monitoring

The quality status can be requested with "Q?"

Usually, a quality status is requested following an "X" (error) response

The numeric code provides the following information:

- 0 = OK
- 1 = command tapping depth not reached
- 2 = tapping start fault
- 3 = (not used)
- 4 = process interruption by operator
- 5 = error in reverse mode
- 6 = error Sz
- 7 = EMERGENCY STOP active

### In special applications, further information can be retrieved

| Quality status | Additional requests       | Code used |
|----------------|---------------------------|-----------|
| 1              | tapping depth reached     | t?        |
| 5              | no. of reversing attempts | r?        |
| 6              | Sz                        | s?        |

### Remote control mode

The thread tapping machine can be remote controlled.

For this mode, the option ZAP (pneum. spindle feed system) has to be installed.

Also, the operation via the machine control panel is then disabled

Remote control ON: H=1

Remote control OFF: H=0

### Customer specific automatisat--and control software

Upon request we are able to produce customer specific automatisat and control software for max. four inputs and 2 exits (relay contact) and one performance exit (p.e. valve spool) to control tasks with and without PLC.