Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

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Circuits

Joysticks

Handles

Switches

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Table of contents technical data

Spohn+Burkhardt
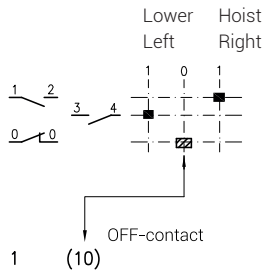Elektrotechnische Fabrik Blaubeuren

Standards: IEC947, EN60947
Ambient temperature: −40 °C to +60 °C

Type of controller			VCS0	VNS0 NNS0	VNS2	VNS2B	Dead man push button or turn switch in handle
Voltage (Ue) in V			250	400	600	600	250
Rated operational current (Ie) in A							
	AC12 (ohmic) 50–60 Hz		10	16	25	––	4
	AC15 (inductive) 50–60 Hz		4	6	10	––	3
	DC12 (ohmic)	12 V	4	8	14	25	2
		24 – 42 V	1,7	1,7	2,6	16	1,6
		115 – 230 V	0,3	0,3	0,45	8	0,3
	DC13 (inductive)	24 – 42 V	0,8	1,1	2	10	1,1
		115 – 230 V	0,2	0,2	0,28	2	0,2
	DC12 (ohmic) with gold contact 30 V			4 mA	4 mA	––	4 mA
Short circuit	switch fuse		6	10	16	16	––
	fuse		6	10	16	16	––
Mechanical lifetime mio. cycles			10	20	10	10	––
Connections:							
	Screw		M3,5	M3,5	M5	M5	M3,5
	Wire profile		1,5 mm²	1,5 mm²	6 mm²	6 mm²	––
	With gold contacts	connection	––	soldered			
		wire profile	––	0,5 mm²			

Cycles in Mio

Lifetime with AG contacts
AC12 (ohmic load 230 VAC)

VCS0   VNS0 NNS0   VNS2

Amps

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Elektrotechnische Fabrik Blaubeuren

1 (10)

Lower Left — Hoist Right

OFF-contact

1   (10)

12 (120)

Lower Left — Hoist Right

OFF-contact

12   (120)

2 (20)

Lower Left — Hoist Right
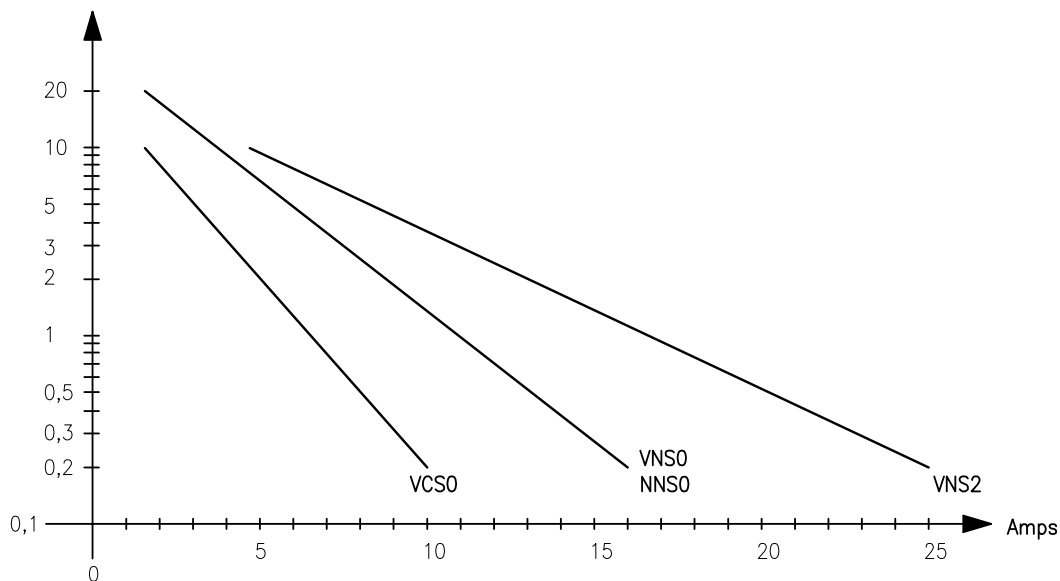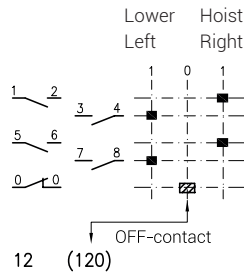
OFF-contact

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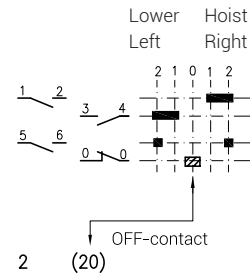
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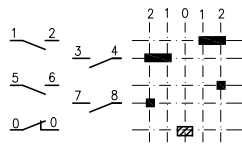
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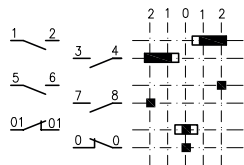
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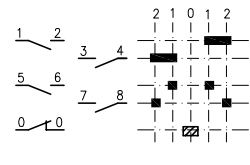
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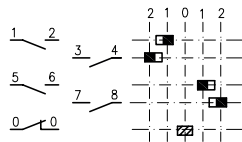
21   (210)
21 A (210 A)   without overlapping

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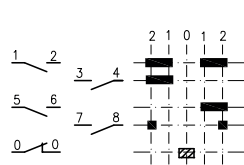
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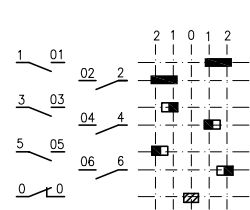
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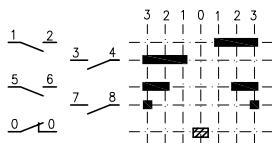
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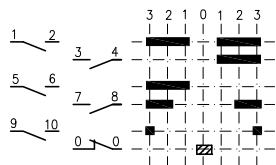
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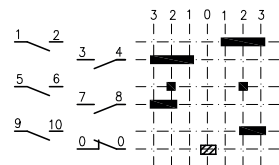
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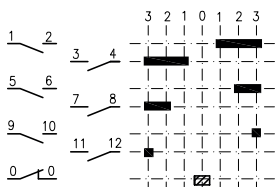
31 (310)

33 (330)

Specifications in brackets means with OFF-contact

black field, contact closed

overlapping

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Elektrotechnische Fabrik Blaubeuren

4 (40)

Lower Left — Hoist Right

OFF-contact

4   (40)

4D (4D0)

Lower Left — Hoist Right

OFF-contact

4 D   (4D0)

42 (420)

Lower Left — Hoist Right
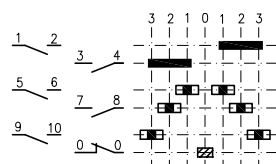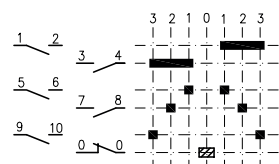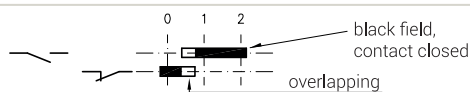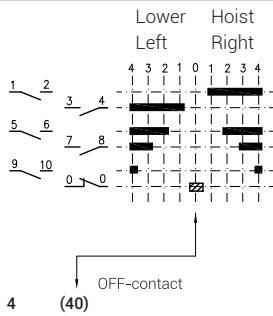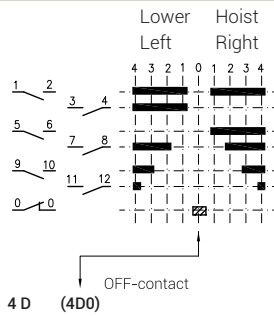
OFF-contact

42   (420)
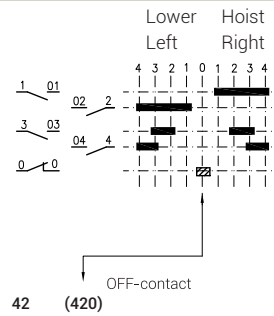
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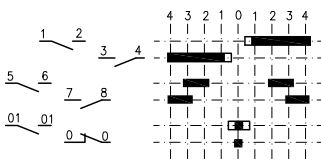
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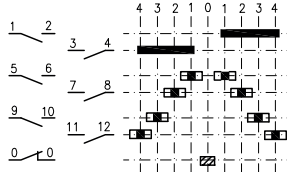
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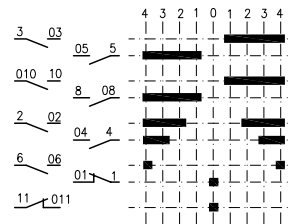
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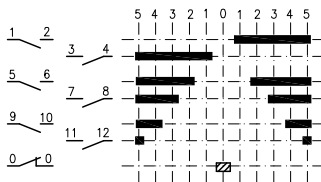
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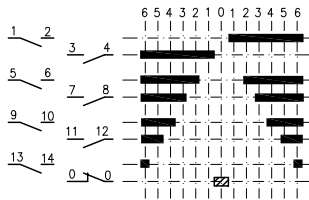
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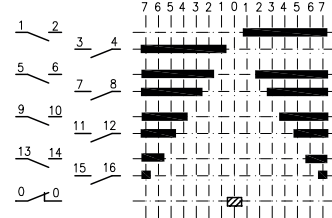
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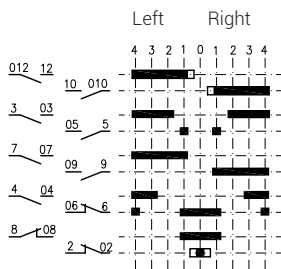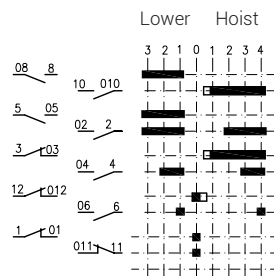
Left — Right

UKY (0) NESP 126 0108

Lower — Hoist

EK (0) EKY (0) NESP 126 1027

Lower — Hoist

EHKY (0) NESP 126 0103

Lower — Hoist

Specifications in brackets means with OFF-contact

black field, contact closed

overlapping

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren
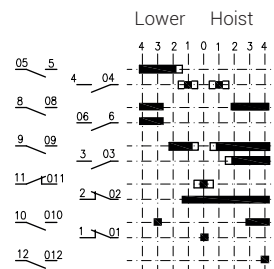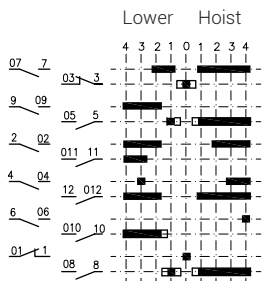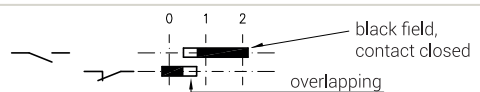
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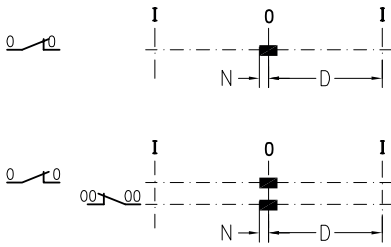
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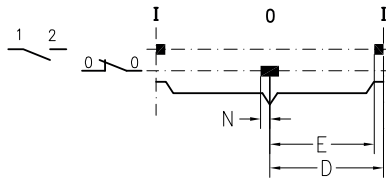
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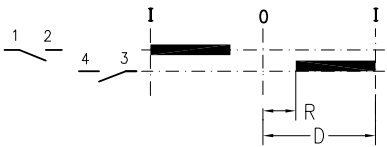
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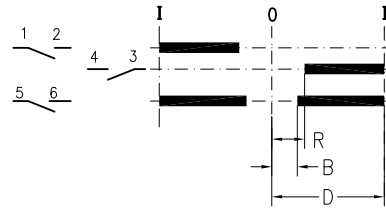
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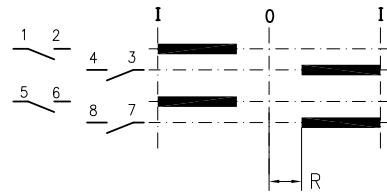
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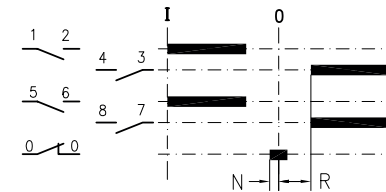
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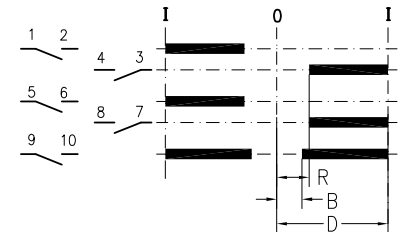
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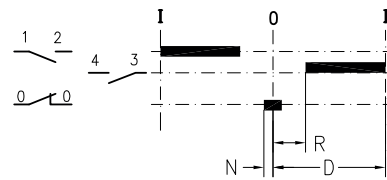
9P1A

10P

Specifications in brackets means
with OFF-contact

black field,
contact closed

overlapping

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

4PN

Lower Hoist
Left Right

5PN

Lower Hoist
Left Right

6PN

Lower Hoist
Left Right
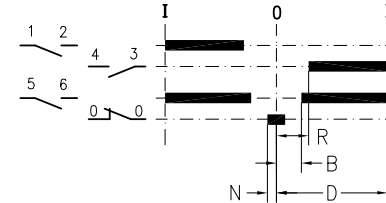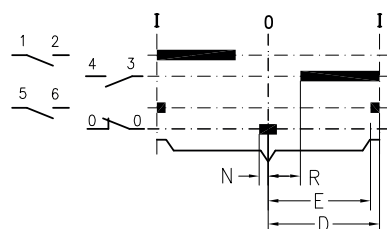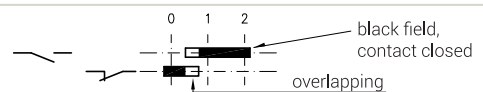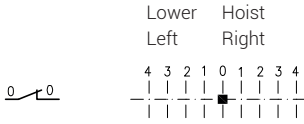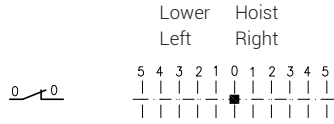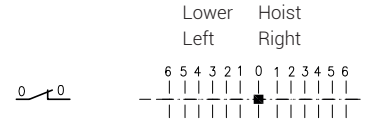
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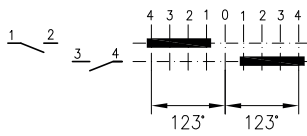
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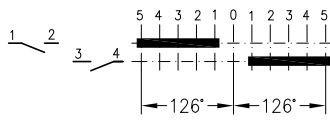
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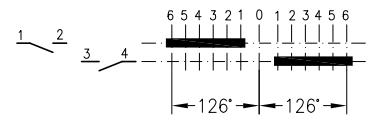
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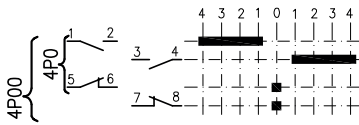
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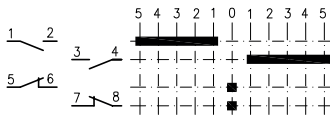
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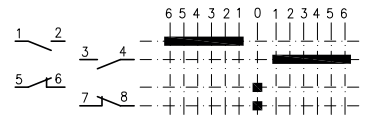
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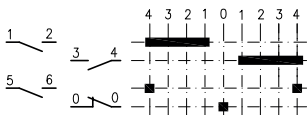
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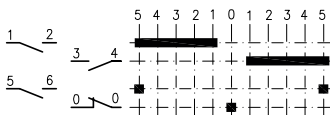
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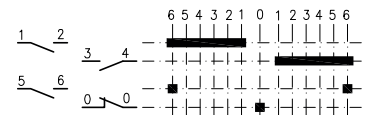
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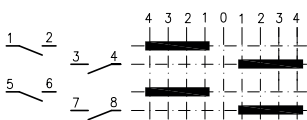
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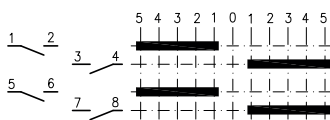
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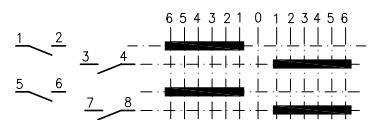
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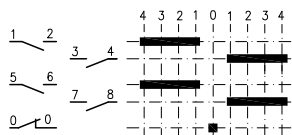
5P20

6P20

Specifications in brackets means with OFF-contact

black field, contact closed

overlapping

1 (10) (100)

switching direction
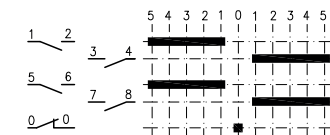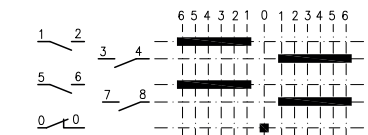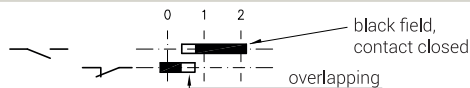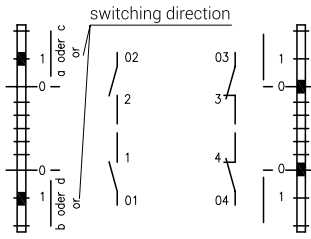
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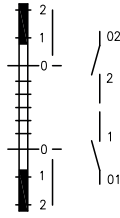
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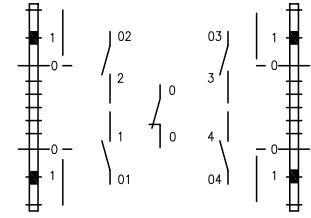
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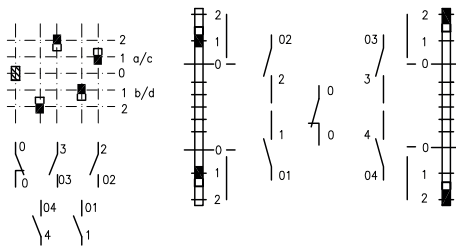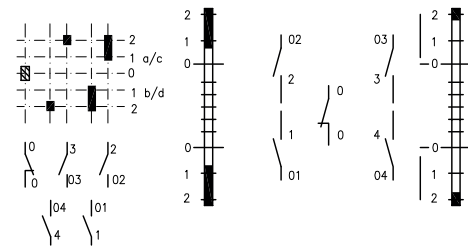
24 (240)

26 (260)
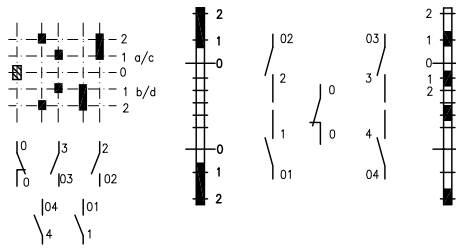
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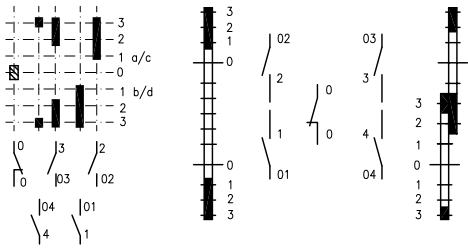
42 (420)
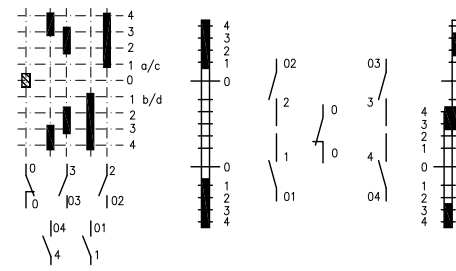
8P1 without, 9P1 with OFF-contact
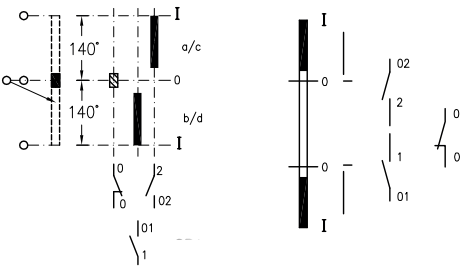
4 (40)

5 (50)

6 (60)

Specifications in brackets means
with OFF-contact

black field,
contact closed

overlapping

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-S-6

Circuit GM0N, SM0N

TI-S-6

1

contact arrangement:

10

contact arrangement:
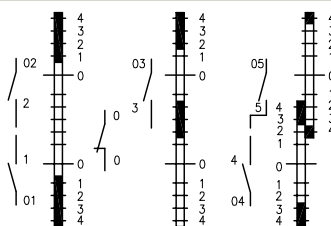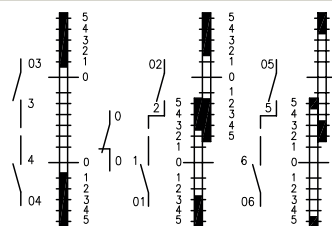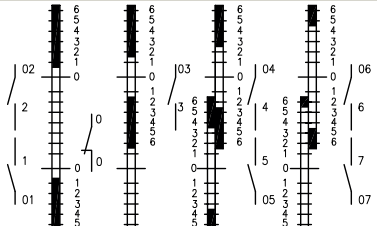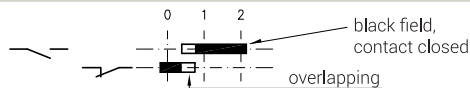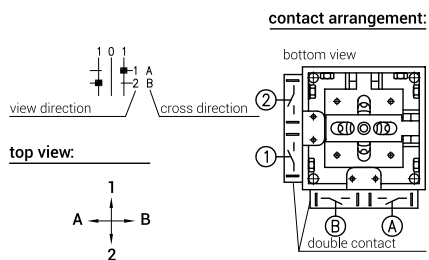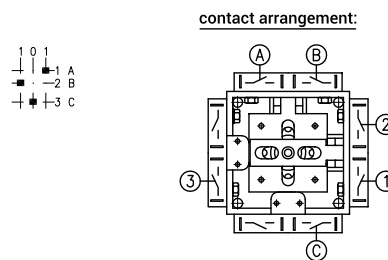
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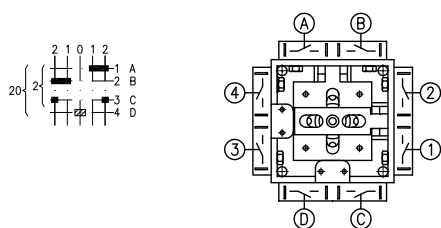
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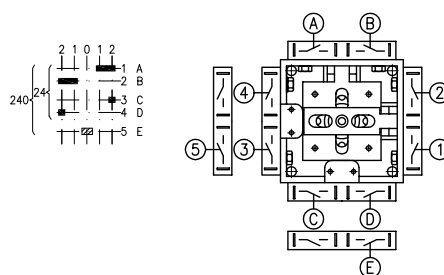
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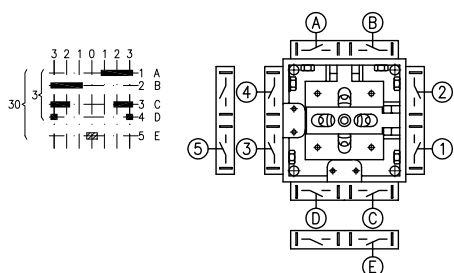
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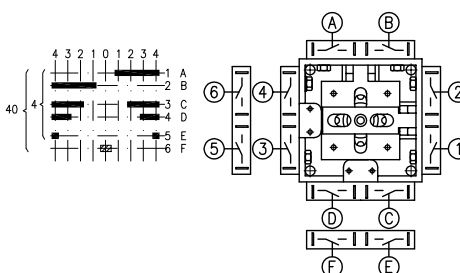
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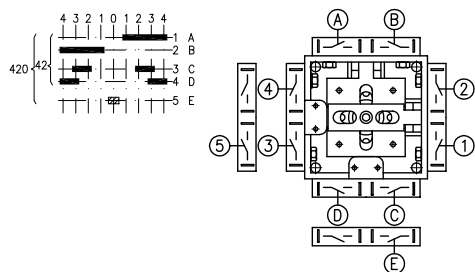
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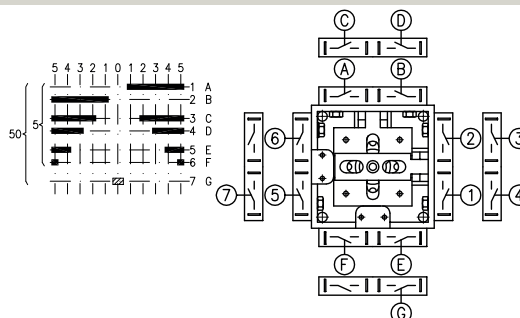
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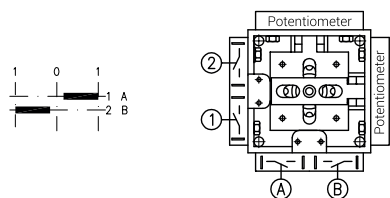
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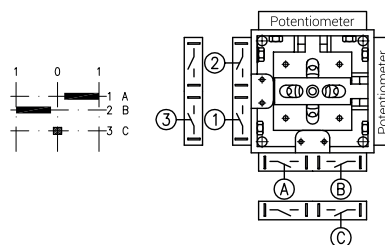
With microswitches

M
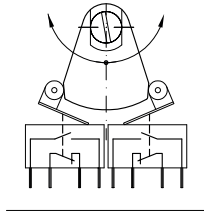
1 - 0 - 1 without potentiometer
without zero notching

M1
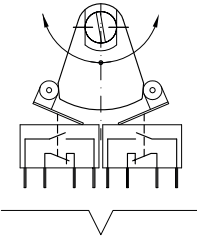
1 - 0 - 1 without potentiometer
with zero notching

MP
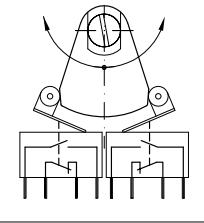
Potentiometer circuit
without zero notch

MP1
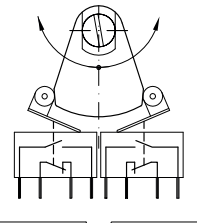
Potentiometer circuit
with zero notch

MP5
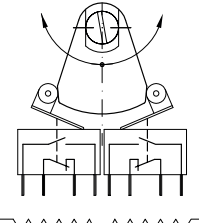
Potentiometer circuit with
5-0-5 steps and feeling notches

Connection example

shaft
movement of notching cam
notching cam
micro switch connections
lever with roller

Design

01 0   1 2   00 02
Brücke
00   0
01   1
02   2
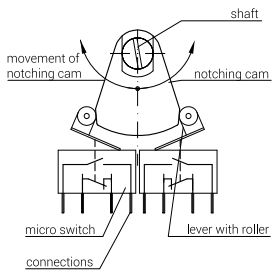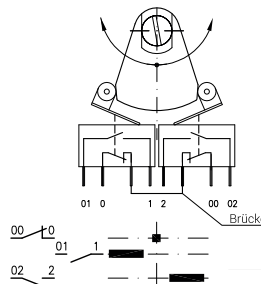
Potentiometer circuit with
zero- and direction contacts

With double contact elements

PN

1
I   0   I
1
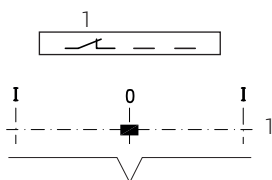
Potentiometer circuit with
zero notching

PNN
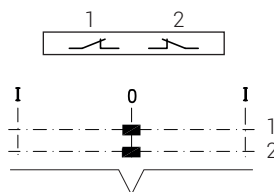
1   2
I   0   I
1
2

Potentiometer circuit with
zero notching

8P1

1   2
I   0   I
1
2

Potentiometer circuit with
zero notching

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-GS

Graphical symbols for tower cranes

TI-GS

Errors and technical changes reserved.
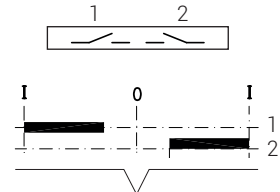
1. Trolley/Slewing
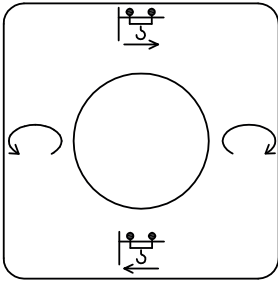
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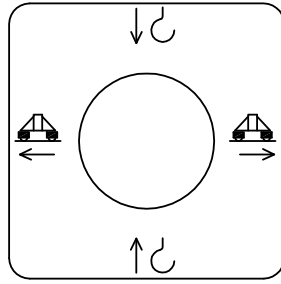
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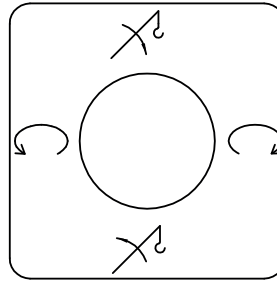
4. Hoist/Grab
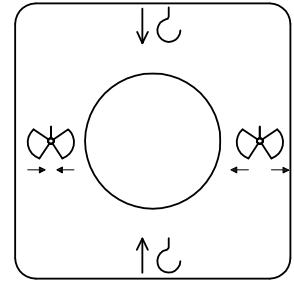
5. Hoist
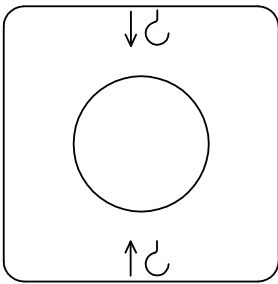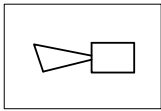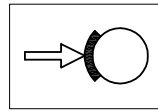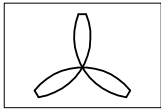
6.		Horn	12.		Brake on
7.		Ventilator	13.		Lifting large, small
8.		Interior heating	14.		Lifting large, medium, small
9.		Windscreen wiper	15.		Normal run
10.		Windscreen washer	16.		Fast run
11.		Brake lining wear	17.		Fast speed
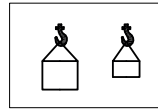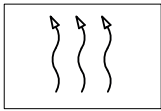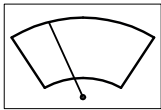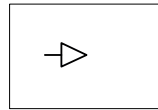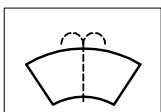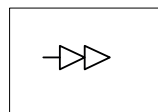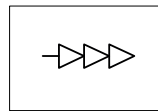
Use: Can be fitted to controller VNS0, NNS0 or VNS2.

Features: Small space requirement, direct connection to controller contact system
without special couplings.

Description: The principle of the design in magnetic to provide a contactless system.
The rotary magnetic inductive coupling gives the highest operating life.
Primary and secondary coils are separately epoxy encapsulated.
Angle of rotation ±100° till 120°.
From 0 to 20° a small output voltage change is achieved giving safety
during inital contact closure.
This also allows to operate at slow speeds.

Arrangement:
e.g. drive H

Technical data:

Input: at Zero position 5 VA
at Zero position 19 VA
Output: maximum load 3 VA

Voltage: Primary: 115 or 230 V, 50 or 60 Hz
Secondary: 50 V

Weight: 0,65 kg

Circuit diagram:

U1 ○   ○ u2
prim.   sek.
V1 ○   ○ v2

Characteristic curve:

Otuput voltage:
in V

60 ——————————————————————— 8 kΩ
                                     4,5 kΩ
50 ——————————————————————— 3 kΩ

40 ——————————————————————— 1,5 kΩ

30

20

10

0
120° 100° 80° 60° 40° 20° 0° 20° 40° 60° 80° 100° 120°

→
Angle
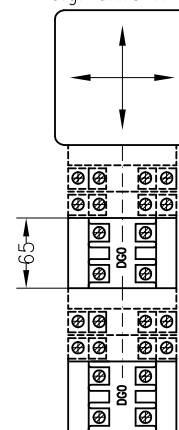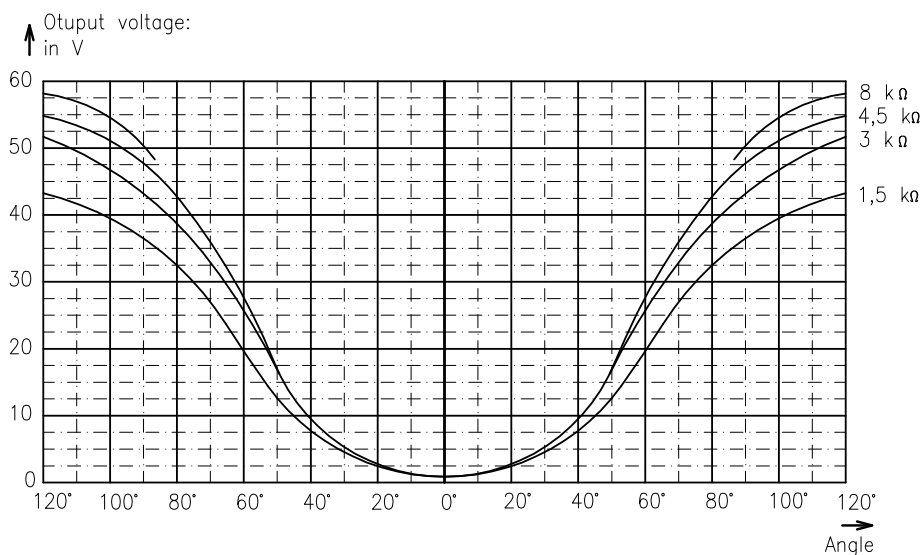
Versions:	Type:	SPOBU–Mat.–Nr.:
Primary 115 V, secondary 50 V, 50/60 Hz	DG0 115/50	13763
Primary 230 V, secondary 50 V, 50/60 Hz	DG0 230/50	13764

Use: Stepless rated values for VNS0, NNS0 or VNS2 controllers.

Features: Small space requirement, direct connection to controller contact system without special couplings.

Description: The principle of the design in magnetic is to provide a contactless system.
The rotary magnetic inductive coupling gives the highest operating life.
Primary and secondary coils are separately epoxy encapsulated .
Angle of rotation ±100° till 120°.

Input: Approx. 5 Watt

Voltage: Primary: 115 V or 230 V, 50 Hz or 60 Hz
Secondary : 50 V, other voltages on request (230/115 V/50 Hz transformer to be switched in series)

Output voltage: See characteristic curve (voltage at evaluation ESS030)

Weight: DDG0   0,65 kg
ESS030 0,2 kg

Connection:
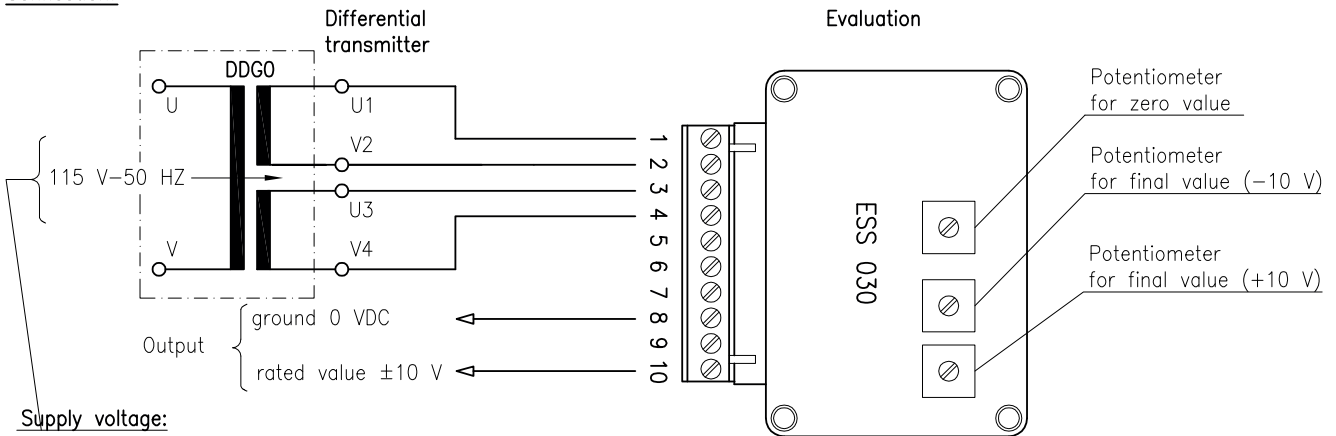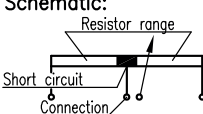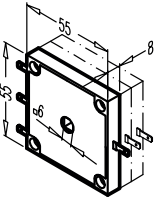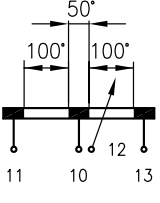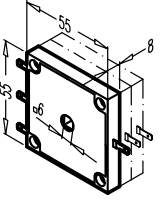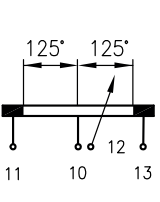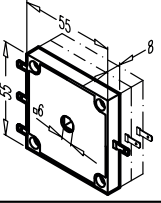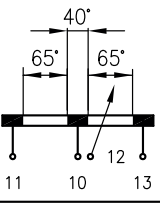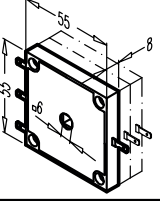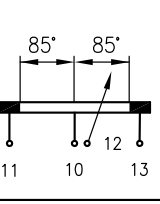
Supply voltage:

Characteristic: Output voltage
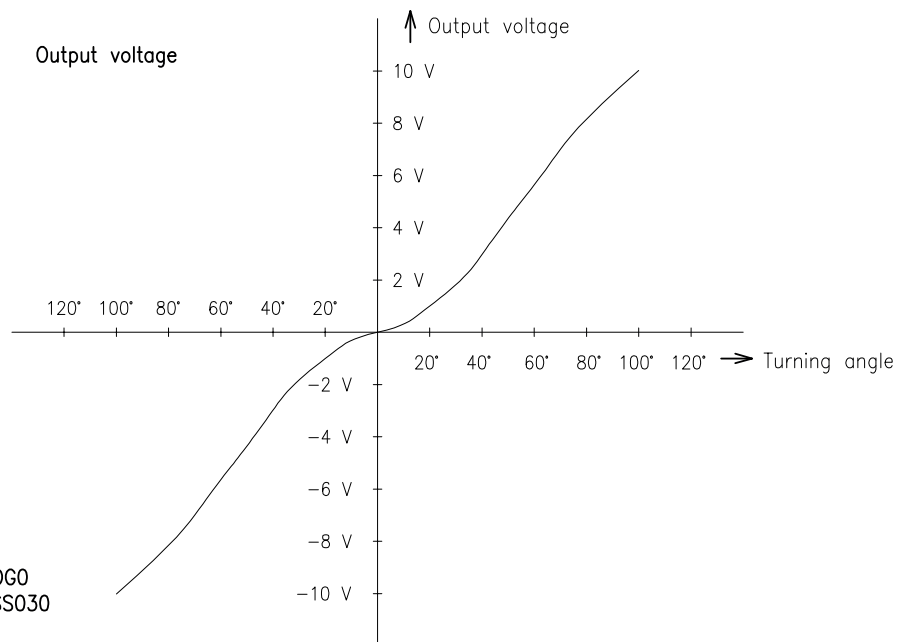
Versions:
Differential—transmitter   DDG0
Evaluation   ESS030

	Schematic: Resistor range / Short circuit / Connection	Ohmic value R	Type	Spobu Mat.–Nr.			Mounting on joystick			
							VCS0	VNS0	NNS0	VNS2
PQxx	SM7206–21–A 50° / 100° 100° / 11 10 13 / 12	1 k–0–1 k	PQ11	56396			✔	✔	–	✔
		5 k–0–5 k	PQ55	56161						
		10 k–0–10 k	PQ1010	56402						
PQSxx	SM7206–22–A 125° 125° / 11 10 13 / 12	1 k–1 k	PQS11	56932			✔	✔	–	✔
		5 k–5 k	PQS55	56404						
PQNxx	SM7206–17–A 40° / 65° 65° / 11 10 13 / 12	5 k–0–5 k	PQN55	20108			–	–	✔	–
PQNSxx	SM7206–17–B 85° 85° / 11 10 13 / 12	5 k–5 k	PQNS55	25360			–	–	✔	–

Technical data/notes:
Operating temperature: –30°C ... + 80°C
Protection: IP30
Resistance tolerance: 5%
load: 1,5W bei 20°C
lifetime: max. 10 million cycles
(depending on load, environmental circumstances)
Connections: flat plug (2,8x0,8), solderable (up to 220°C)
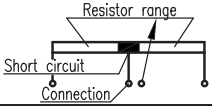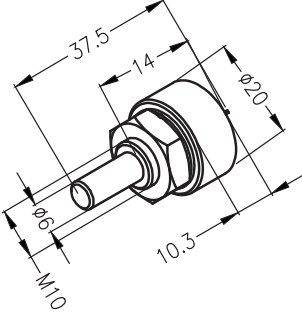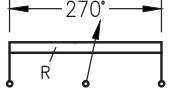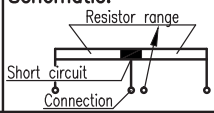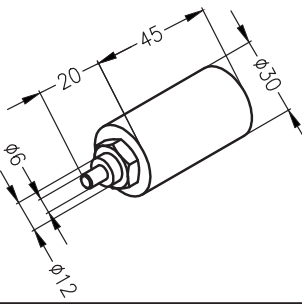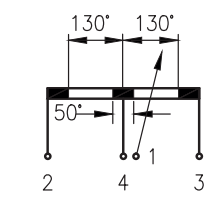
Other ohmic values on request
Potentiometer stackable

Model	Schematic:	Ohmic value	Type	Spobu Mat.-Nr.		Mounting on joystick			
						VCSO	VNSO	NNSO	VNS2
PW70 10 mio. rotations 6 Watt by 20 °C wire wound wiper current max. 120 mA resistance tolerance ±1% max. connecting load 60 V	**PW70–SM 7206–L** 11 10 13 CCW CW	5 k–0–5 k	PF55	11765	–	✔	✔	✔	✔
		5 k–0–5 k oil filled	PFÖ55	11729	–	✔	✔	✔	✔
	PW70d –SM7206–D1 11 12 13 without stoppers	5 k	PFS5	12470	–	–	–	–	–
DP60 1 mio. rotations 50 Watt by 20 °C wire wound with centre mounting max. wiper current see ohmic values resistance tolerance ±5% standard L1=26 mm * by 15134 L1=19 mm	**DP60–SM7206–03** stopper	on request			–	✔	✔	✔	✔
PW0045 10 mio. rotations 1,5 Watt by 20 °C wiper current max. 120 mA resistance tolerance ±5% max. connecting load 24 V operating temperature −50 °C..+80 °C solder connections sleeve bearing	**PW0045** 11 12 13				Mount at foot pedal				
							FST		
		5 k–345°		16403			✔ ✔ ✔		

Model	Schematic:	Ohmic value R	Type	Spobu Mat.–Nr.		Mount at foot pedal FST
0621–013 cermet coat 2 W at 85 ˚C linear characteristic solder connections		4k7	**R5K**	13650		✔

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren
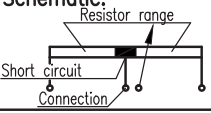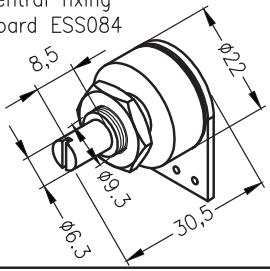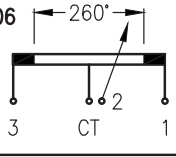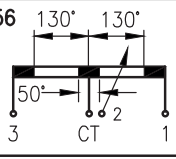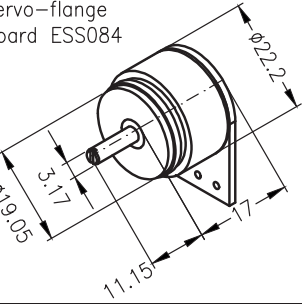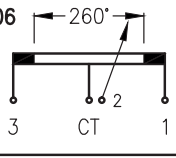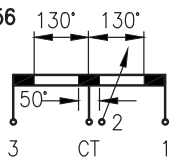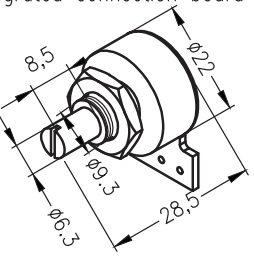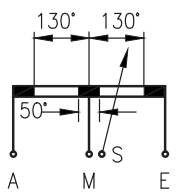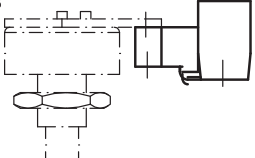
Model	Schematic:	Ohmic value	cable length	SPOBU Mat.–Nr.		Mount at joystick			
						ST0	ST1	VNS0	NNS0
Exd–PL310 explosion protection degree of protection: II 2G EEx d IIC T6 approval: PTB 03 ATEX 1026 conductive plasticpotentiometer mechanical life: 5 mio. cycles resistance tolerance ±20% centre tap	1=wiper 2=start 3=end 4=centre tap	5 k–0–5 k 5 k–0–5 k	5 m 10 m special length	16465 32902		✔ ✔	✔ ✔	✔ ✔	✔ ✔
Exd–PW0045 wire wound potentiometer		5 k–0–5 k 5 k–0–5 k	5 m 10 m	57109 12445		✔ ✔	✔ ✔	✔ ✔	✔ ✔

Note for the application of conductive potentiometers:
* application of potentiometer as voltage devider without wiper load
* recommended operational current in wiper circuit = 0,1 µA * maximal power rating 0,5 W/40 °C
* maximal wiper current at failure 1 mA * maximal voltage supply $U_{max}(V) = \sqrt{P(W) \times R(\Omega)}$, max. 40 V

Common: mechanical life: 10 mio. cycles resistance tolerance ±20 % with centre tap	Schematic:	Ohmic value	Type	Spobu Mat.–Nr.		Mount at controller				
						STO ST1	MO VCS0	CS1	VNS0 NNS0 VNS2	NS3
Version G...: central fixing board ESS084	S406 260°	5 k	G5	20513	–	✔	–	✔	–	–
	S256 130° 130° 50°	5 k–0–5 k	G55	20514	–	✔	–	✔	–	–
Version B...: servo–flange board ESS084	S406 260°	5 k / 10 k	B5 / B10	20508 / 20509	–	✔	✔	–	✔	✔
	S256 130° 130° 50°	5 k–0–5 k / 10 k–0–10 k	B55 / B1010	20511 / 20512	–	✔	✔	–	✔	✔
Version M...: central fixing integrated connection board	SM7206–30 130° 130° 50°	5 k–0–5 k	M55	23377	–	–	–	✔	–	–
4–pole, case GG with plug ST for above mentioned potentiometers	GG=MSTBA 2,5/4–G ST=MSTBT 2,5/4–ST		accessory type –K							

Note for the application of conductive potentiometers:
* maximal wiper current 1 mA
* maximal power rating 0,5 W/40 °C
* maximal voltage supply $U_{max}(V) = \sqrt{P(W) \times R(\Omega)}$
* recommendation: application of potentiometer as voltage devider without wiper load
* load of direction switches: see wiper circuit

Features:
10 mio. cycles
Conductive plastic with centre tap and direction contacts.
Resistance tolerance ±20%

Plug connection: AMP7−215083−8	Ohmic value	Type	Spobu Mat.−Nr.		Mount at controller						
					MO	VCSO	CS1	VNSO	NNSO	VNS2	NS3
PL332 / PL322	5 k	BLR5	13009	−	✔	✔	−	✔	✔	✔	✔
	5 k	GLR5	12688	−	−	−	✔	−	−	−	−
PL332 / PL322	5 k−0−5 k	BLR55	23269	−	✔	✔	−	✔	✔	✔	✔
	5 k−0−5 k	GLR55	23268	−	−	−	✔	−	−	−	−
PL322	5 k−0−5 k	GDLR55	27316	−	For handle UGA with twist operation						

This device consists of a potentiometer with amplifier, with several common analogue outputs. It is available with servo-flange as well as central fixing. The current output corresponds to the mechanical movement of the handle. The electronic board has a protective layer against humidity. It has a voltage indicator as well as a trimmer for the output signal.

Technical data

Electrical

Supply voltage:	24 VDC ± 20 %
Supply current:	max. 60 mA
Load:	max. 500 Ω
Operating temperature:	0 - 60 °C
EMC:	EN 61000 - 6 - 3 : 2007 + A1 : 2011
	EN 61000 - 6 - 2 : 2005

Mechanical

Degree of protection:	IP00
Connection:	Plugin-socket-terminal, 3-pole

Type code

```
                    020
            G      420
    CA     B     41220
Type
Design
Version
```
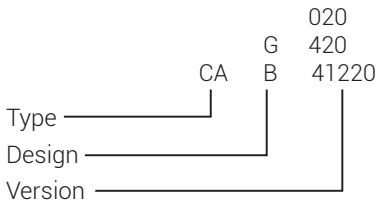
Version	Output signal
020	20 ... 0 ... 20 mA
420	20 ... 4 ... 20 mA
41220	4 ... 12 ... 20 mA

Block diagram

1 +24 V
2 Ausgang
3 0V

Dimensions

CA G... 58 ø22 9.3 22 34 8.5 ø6.3

CA B... 58 ø22 ø19.05 17 32 11.15 ø3.17

Version/Output signal

020

mA
20
15
10
5
165° 130° 25° 25° 130° 165°
Deflection potentiometer

420

mA
20
15
10
5
165° 130° 25° 25° 130° 165°
Deflection potentiometer

41220

mA
20
15
12
10
5
4
165° 130° 25° 25° 130° 165°
Deflection potentiometer

Settings:

Indicator

Trim middle position
Trim end position
Trim end position

1 2 3
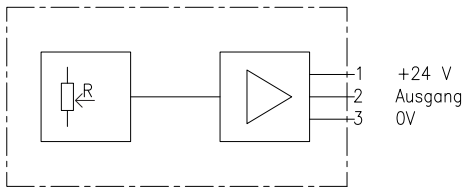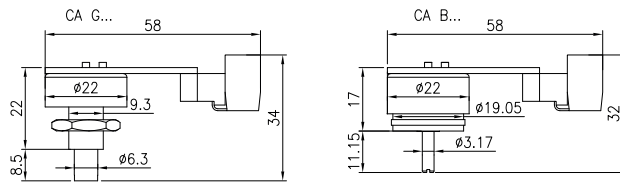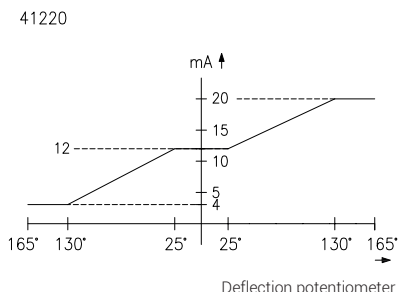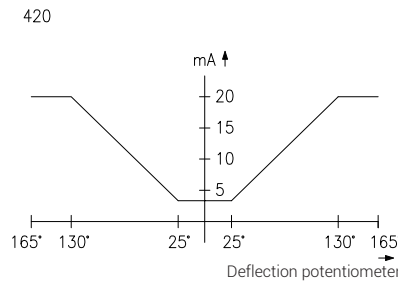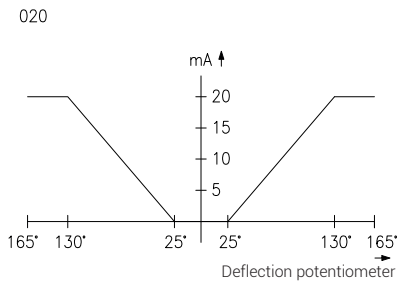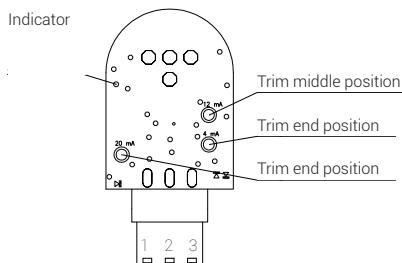
Description:

The potentiometer amplifier ESS109 is integrated in enclosure of CS1 and NS3. It's use is to control a proportional valve with maximal 2 A operating current. The input of the amplifier is controlled by potentiometer with centre tap. The subsequent control compares set value with actual value and calculates the pulse wide modulation for the proportional valve. The frequency is approx. 50 Hz. The output estimated by short−circuit is >4 A, furthermore there is an input clearance on board available.

Supply:

Operational supply:	$+U_B$ = 10...28 VDC	
Maximal current:	<2,5 A	
Voltage break:	<9 VDC	
Integrated inverse−polarity protection		
ESD protected		

ESS109
X1.2 ☐ $+U_B$
X1.1 ☐ 0 V

Temperatur range:

Operation:	−25 ˚C...+65 ˚C (not condensed)
Stock:	−40 ˚C...+85 ˚C

Input:

To be suited for potentiometer
with centre tap: (5−0−5) kOhm
(Limiting dates ohmic values: 2,0...25 kOhm
Supply voltage for potentiometer: ≤5,2 VDC
Connections HF filtrated

ESS109
X4 ☐
X5 ☐
X6 ☐
X7 ☐
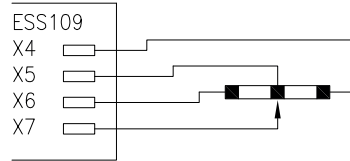
Output:

To be suited for "single coil" and "dual coil" valves only for inductive loads.

Minimal output voltage:	$+U_B$ − 2 V
Pre−current:	0...0,6 A (adjustable with R308)
Maximal current direction A:	0,5...2 A (adjustable with R302)
Maximal current direction B:	0,5...2 A (adjustable with R303)
Frequenzy:	51 Hz (other on request)
Short circuit protected:	>4 A
ESD protected	

Displays:

LED green:	Operational voltage
LED yellow:	Output active

Clearance input:

Only when input is closed the output is activated
Input (X2, X3) is HF−filtrated.

ESS109
X2 ☐
X3 ☐
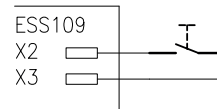
Connections:

According to requirements 1 or 2 micro switches are necessary.

A, "dual coil"

Micro switch

ESS109
X8 ☐
X9 ☐
X10 ☐
X11 ☐

X12.1 ☐
X12.2 ☐
X12.3 ☐

B, "single coil"

ESS109
X8 ☐
X9 ☐
X10 ☐
X11 ☐

X12.1 ☐
X12.2 ☐
X12.3 ☐

X1.2
X1.1
LED green

Layout:

Top:

X8   X10
X11 X9

X3X2X7
X6X5X4

Bottom:

X12.1/2/3

LED yellow

SPOBU
ESS109

308
302
303
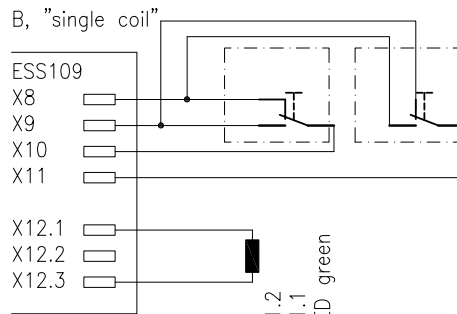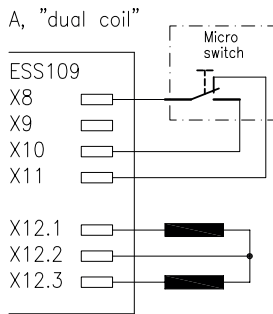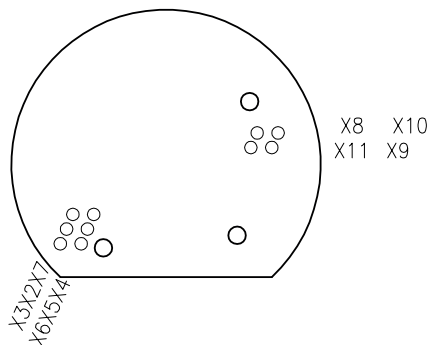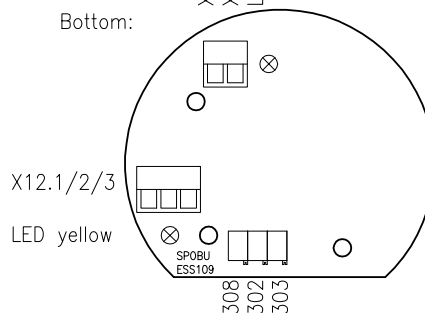
Description:

On the board ESS098 there are two separate amplifiers for potentiometers. Each amplifier converts the ohmic value which is depending on angle, in an output voltage of 6−12−18 V.
The final values (6 V an 18 V) are adjustable by trim potentiometer.
Furthermore it is possible to reverse the characteristic curve by sliding switches.

Output characteristic:

U_{Sig}
18 V
−36°
−27°
6 V
angle of potentiometer

dashed:
reverse characteristic line
by sliding switch
(S1+S2:X−axis; S3+S4:Y−axis)

(valid at U_B=24 V)
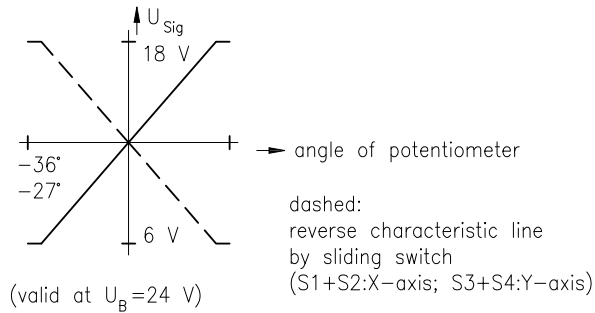
Technical data:

Operational voltage:	$+U_B$20...30 VDC
	Non−bounce protected
Current input:	<100 mA
Operating temperature:	−40 °C to +85 °C
Voltage output:	6(5...7)−18(16...20) VDC
Average voltage:	12 VDC
Signal current:	max. 20 mA (output
	short circuit protected)
Load resistance:	>10 KOhm
Input potentiometer:	resistance 1...25 KOhm
EMI:	EN 55011:1998 +A1:1999
	EN 61000−6−2:2001

Schematic as example for 2 axis joystick:

Poti X−axis
X3 or X2.5
X4 or X2.4
X5 or X2.6
R
X6.1 — A1 } Output
X6.2 — 0 V } X−axis
R9 — Poti for A1 min.
R11 — Poti for A1 max.
Poti Y−axis
X8 or X7.5
X9 or X7.4
X10 or X7.6
U
R20 — Poti for A2 min.
R22 — Poti for A2 max.
X11.1 — A2 } Output
X11.2 — 0 V } Y−axis
X1.2   X1.1
0 V   +24 V

y
x
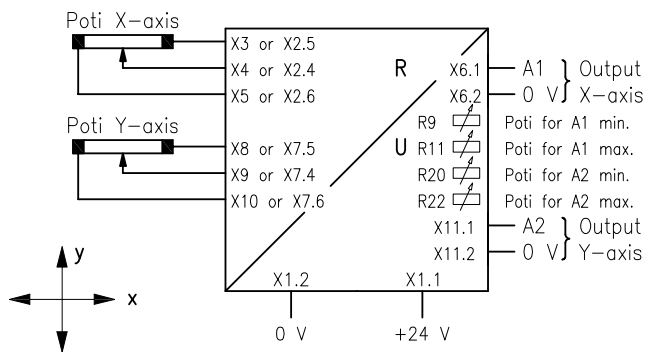
Connections:

Voltage supply:	Screw clamp MKDS1,5/2−5,08
Outputs:	Screw clamp MKDS1,5/2−5,08
Potentiometer:	Micro−match−connector 8 pins or solder pads

Connections:
Component view:

R20
R22
X11.1
X11.2
X9, X8, X10
S4, S3, S2, S1
X4, X3, X5
X6.1
X6.2
X1.2
X1.1
R9
R11

Solder view:

X7
X2

Mounting bores: 3 x ⌀4,2 mm
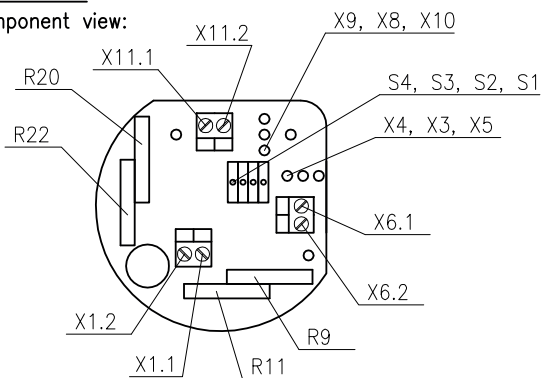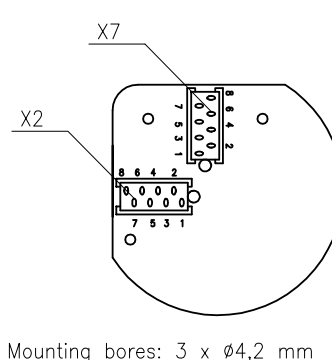
Connections X2, X7:
(micro−match 8, firm AMP)

3   CT 2   1
8 6 4   2
7 5 3 1
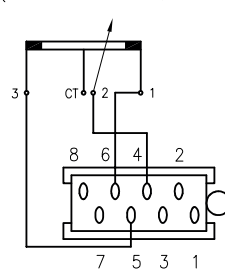
e.g.:
poti G55

Adjustment instruction:

* Connect voltage meter on output 1 or 2
* Adjust potentiometer to maximum value or move lever to maximum
* Adjust maximum voltage (18 V) with R11 or R22
* Adjust potentiometer to minimum value or move lever of joystick to maximum opposite direction
* Adjust minimum voltage (6 V) with R9 or R20
* Note: In case of calibration above mentioned sequence is absolutely

01.03.2020

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Elektrotechnische Fabrik Blaubeuren

TI-Encoder-1

Programmable optoelectronical absolute encoder OER, OERH
for joystick type VNS0, NNS0 and VNS2

TI-Encoder-1

This encoder uses a contactless optoelectronic system to identify each position. In addition to the binary and gray—code output the encoder has got 2 direction signals and an LED to indicate zero position. The encoder is mounted with coupling to the VNS0 and NNS0 master controller.

Features:
Push button for setting zero
LED for zero—position
Trimming potentiometer for current outputs
Programmable with   PC—programme:
Programmable functions:curve characteristic, angle,
                dead time, gray/binary 0—20/4—20 mA
                and dead time for direction signals

Application:

* Digital reference for PLC s
* Analoge output for PLC s

OER... standard cable LiYCY
OERH... non halogen cable
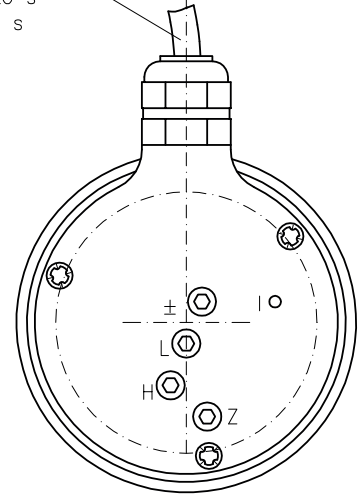
Designation key:	Version		charak−teristic curve	type of controller
	with cable LiYCY	with non halogen cable		
8 bit binary code	OER8B	OERH8B	– ☐	☐
8 bit gray code	OER8G	OERH8G	– ☐	☐
current output 0−20mA	OER020	OERH020	– ☐	☐
current output 4−20mA	OER420	OERH420	– ☐	☐
special characteristic curve	OERS...	OERHS...		

Characteristic curve (See details below)	Type of controller	Characteristic curve 1		
		α	β	γ
☐1 = linear	VNS0 = ☐	±20°	±123°	±15°
☐2 = progressive 1	NNS0 = N	±20°	± 85°	±15°
☐3 = progressive 2	VNS2 = NS2	±20°	±100°	±15°
☐4 = progressive 3				

Output signals:

8−bit−binary code + 2 direction signals:

steps: 255 . . .4 3 2 1   0   1 2 3 4 . . .255
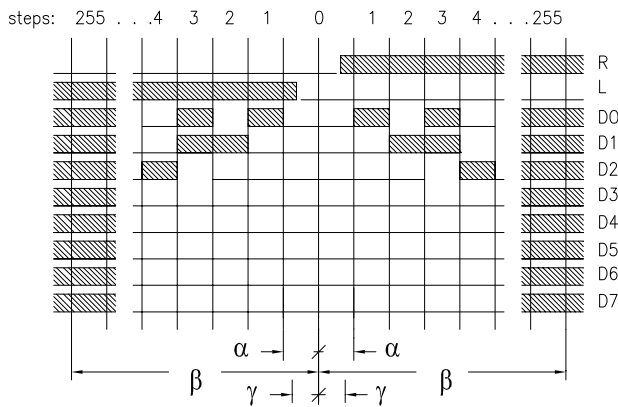
8−bit−gray code + 2 direction signals:

steps: 255 . . .4 3 2 1   0   1 2 3 4 . . .255

R, L... direction signals
D0−D7... 8 data signals
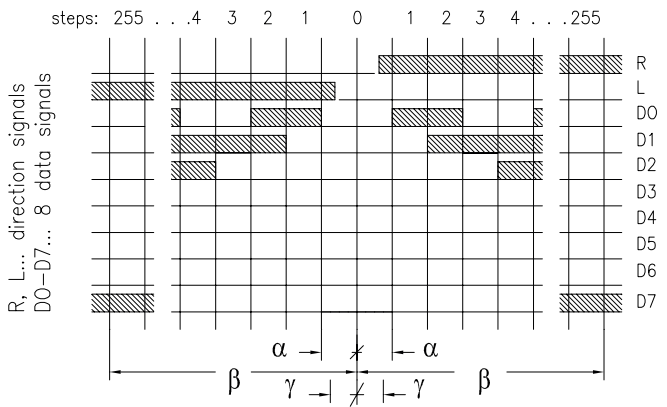
Current output   0−20 mA + 2 direction signals:
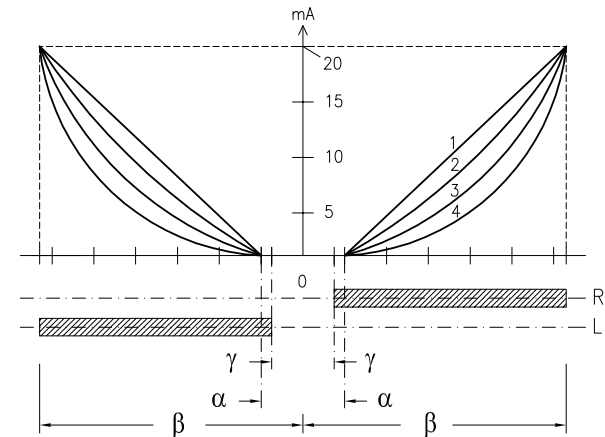
Current output 4−20 mA + 2 direction signals:

01.03.2020

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TI-Encoder-2

Programmable optoelectronical absolute encoder OER, OERH
for joystick type VNS0, NNS0 and VNS2

TI-Encoder-2

Dimensions:

Push button for zero setting
Trimmer for final value only for current output
Trimmer for initial value
Trimmer for reversing direction
LED-indication for zero position
Cable length 0,4 m min. bending 15xØ cable
15 pin D-Sub plug

Connection:

8 bit gray or binary output:

Signals	15 pin D-Sub-plug (pin number)	Cable code DIN 47100
D0	7	green
D1	6	yellow
D2	5	grey
D3	4	pink
D4	3	blue
D5	2	red
D6	15	red/blue
D7	14	grey/pink
right	13	black
left	12	violet
supply voltage U+	9	white
GND 0V	8	brown
shielding	housing	shielding

Connection diagram 0-20/4-20 mA:

Signals	15 pin D-Sub-plug (pin-number)	Cable code DIN 47100
output signal	1	green
right	13	yellow
left	12	grey
supply voltage U+	9	white
GND 0V	8	brown
shielding	housing	shielding

Electrical data:

Supply voltage	9...36 VDC(Uv)
Supply current	type (max) 45 (70) mA at 24 VDC
Temperature	±0,5% at 20 mA (±100 µA)
Output signals	2 direction signals + current output or 8-bit-code
Angle	±123° max. mechanical measuring

Outputs:

Parallel- and direction signals	$U_{High} \geq Uv-3,0$ V, $U_{Low} \leq 0,5$ V (at 20 mA) short circuit protected
Data code	Gray / Binär
Direction signals	signal R=1:a (0:a), L=0:a (1:a) CW (CCW) from 0-position, view onto shaft
Current outputs	0...20 / 4...20 mA
Maximal load	(+Uv-7 V) / 20 mA=R max.
Minimal load	(150) 300 Ω bei (9...30) 30...36 VDC 30...36 VDC voltage supply, continuous operation
Adjustment range current output signals	
4 mA	3,8...4,2 mA
20 mA	17...22 mA
Scanning frequency	1 kHz
Precision	±1/2 LSB
Cable	0,4 m shielded (16x0,14 mm)
Plug (pins)	15 pin D-sub plug at end of cable

Mechanical data:

Inertia factor	$1,7 \times 10^{-6}$ kgm²
Journal load	radial 20N, axial 10N
Shaft	6 mm, squared
Code disc	unbreakable acryl-glass
Housing	aluminium
Weight	350 g
Protection	IP65
Temperature	-40 °C...+70 °C
Storage temperature	-45 °C...+70 °C
Vibration	≤300 m²/s (50...2000 Hz)
Shock	≤2000 m²/s (11 ms)

EMI:

EN61000-4-2	ESD
EN61000-4-3	radiated RF field
EN61000-4-4	electrical fast transient/Burst
EN61000-4-5	surge
EN61000-4-6	conducted RF voltage
EN55011	radiated emission

Options:

see sheet E-Electronic-2
Extension cable LiYCY 12 pole 2 m gray/binary code

Extension cable LiYCY 5 pole 2 m current output

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Programmable optoelectronical absolute encoder OGRPP
for joystick type VNS0 and NNS0

This absolut−encoder shows a contactless system to be mounted directly, servo−flanged to controller type VNS0 and NNS0. Limit adjustment by trimming potentiometers. Polarity change by rotary switch.

Designation key:

OGRPP20I −□ □ current output −20..0..+20 mA □ = curve characteristic
1 = linear
└ for NNS0−controller add:N
2 = progressiv 1
3 = progressiv 2
4 = progressiv 3
S0 = special application

Output signals:

left   right

by VNS0 ├─ 123° ─┼─ 123° ─┤
by NNS0 ├─ 100° ─┼─ 100° ─┤

15°─┤ ╱ ├─ 15°
Indication light

To inverse output polarity turn over rotary switch

Diagram:

white 9
+24 VDC

voltage reference

microprozessor

output stage

I out 1 green
0...+−20 mA

brown 8
0 VDC

Application:

Digital reference for
* PLC's
* Multiplexer systems
* Bus systems

Limit adjustment high (positive current)

Limit adjustment low (negative current)

Rotary switch for polarity change

Indication light for zero position

Coupling flange NS0 46−55

Limit adjust−ment high (positive current)

Limit adjust−ment low (negative current)

Light indication for zero position

Cable 0,4 m

15 pin D−Sub plug

2 m cable, one side with socket

±20mA output:

Signals	15pin D−Sub−plug (pin number)	Cable
output signal	1	green
supply voltage	9	white
GND 0 V	8	brown
shielding	housing	shielding
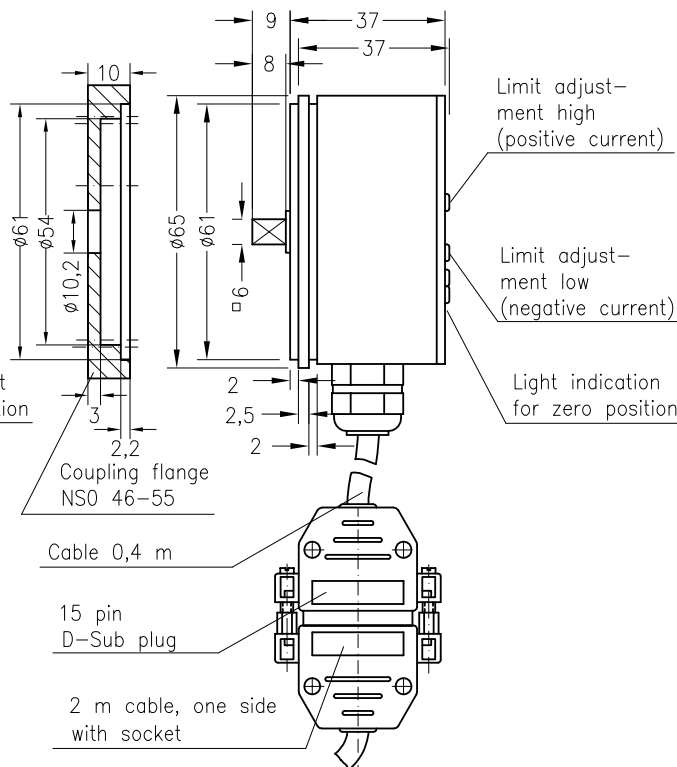
Electrical features:
Supply voltage: 18...36 VDC
Supply current: max. 70 mA
Load: max. 500 Ohm
                       min. 0 Ohm
Temp. stability: max. 1%
Output current: −20...0...+20 mA
Aktiv angle: 123°−0−123°
Operating temperature: −20 °C...+60 °C
Storage temperature: −25 °C...+70 °C

Other angle settings on request

Mechanical features:
Enclosure: aluminium anodized
Connection: shielded cable
Angle: 360°
Protection: IP65
Code disc: unbreakable acrylic glass
Weight: 350 g
Vibration: ≤ 100 m^2/s (50...2000 Hz)
Schock: ≤ 1000 m^2/s (11 ms)

EMI:
EN 50081−1
pr EN50082−2

	SPOBU Mat.−Nr.
OGRPP201	26630

Option: see sheet E−Electronic−2
1 piece coupling NS046−55
          for controller VNS0

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Optoelectronical absolute encoder OGF, OGFR
for joystick type VCS0

This encoder uses a contactless optoelectronic system. The encoder is mounted directly (without any special coupling) to joystick controller type VCS0. Zero position is indicated by LED.
Furthermore: output (gray or binary code) is adjustable by change-over switch.

Encoder	Function	Angle of rotation
OGF 6B	6-bit-binary-code	2x35°
OGFR 6B	2 direction signals	2x26°
OGF 6G	6-bit-gray-code	2x35°
OGFR 6G	2 direction signals	2x26°

Application:

Digital reference for
* PLC
* Controlled drive
* Hoist drive
* Digital-analogue transducer

75

LED

min. bending radius 10xØ cable

17

1-2 | 20 4

56,6

Change-over switch
Gray-binary code
Before operation
remove screw

15 pin
D-sub plug

Cable length
0,4 m

Option:
Extension cable 2 m

15 pin
D-sub
socket

Connection diagram:

+24 VDC   9
white

Voltage regulator

U_B

Comparators

Decoder

Push pull output

Pin	Signal	Color
7	D0	green
6	D1	yellow
5	D2	grey
4	D3	pink
3	D4	blue
2	D5	red
13	R	black
12	L	violet

0 VDC   8
brown

Pin Nr.
D-sub-plug

Output signals:
Binary code:

R, L... direction signals
D0-D7... 8 data signals

Steps 63 .. 4 3 2 1 0 1 2 3 4 .. 63

R
L
D0
D1
D2
D3
D4
D5

OGF: 35°   7° 7°   35°
10°   10°
OGFR: 26°   5° 5°   26°
19°   19°
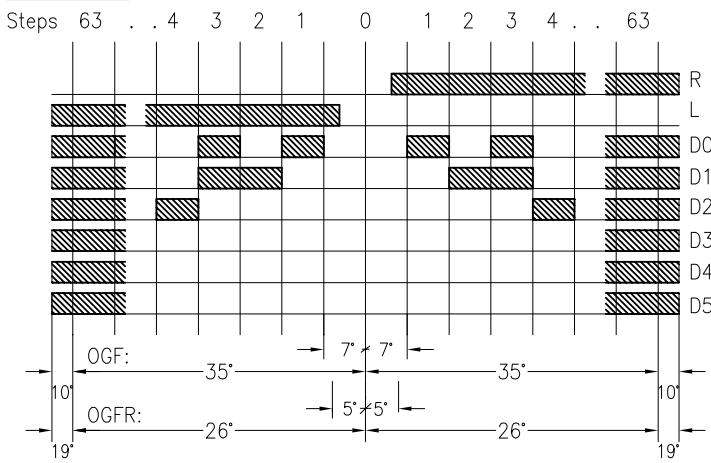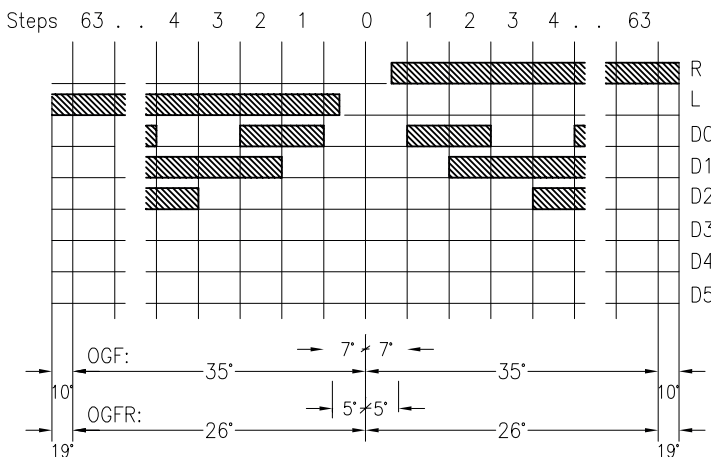
Electrical data:

Supply voltage:	U_B=9...36 VDC polarity protected
Current consumption:	max. 60 mA at 24 VDC
Outputs:	8 x push pull amplifier, short circuit protected
	$U_{High} = U_B -3,0$ V (at 20 mA)
	$U_{Low} = < 0,5$ V (at 20 mA)
Output current per channel:	max. 15 mA
Active angle:	35°-0-35° or rather 26°-0-26°
Temperature range:	-20 °C till +60 °C
Temperature stability:	0,5% of 20 mA (±100 ¹A)

Mechanical data:

Enclosure:	metallized ABS
Connection:	shielded cable LiYCY 10x0,14 mm^2 length 2 m with 15 pin D-Sub-plug
Scanning:	6 bit gray code disc 2 direction signals
Total angle:	45°-0-45°
Inertia factor:	0,3x10^{-6} kgm^2
Protection:	IP42
Resolving:	63-0-63 steps
Dead band zone:	5°-0-5°
Dimensions:	75x56,6x17 mm
Weight:	app. 150 g

EMC:

EN 50081-1
EN 50082-2

Gray-code:

Steps 63 .. 4 3 2 1 0 1 2 3 4 .. 63

R
L
D0
D1
D2
D3
D4
D5

OGF: 35°   7° 7°   35°
10°   10°
OGFR: 26°   5° 5°   26°
19°   19°

Option: see sheet E-Electronic-2
1x extension cable LiYCY 10x0,14 2 m

01.03.2020

TI-Encoder-5

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Optoelectronic absolute encoder OGF, OGFR
for joystick type VCS0

TI-Encoder-5

Errors and technical
changes reserved.

This encoder uses a contactless optoelectronic system. The encoder is mounted directly (without any special coupling) to controller type VCS0.
Zero and limit adjustment by trimming potentiometer. Zero position is indicated by LED.
Furthermore: output 0...20 mA or 4...20 mA is adjustable by change−over−switch.

Version	Output signal	Rotation angle
OGF 020 OGFR 020	20...0...20 mA	35°−0−35° 26°−0−26°
OGF 420 OGFR 420	20...4...20 mA	35°−0−35° 26°−0−26°

Applications:
Analogue output for:
* PLC's
* Control systems
* Converters

Dimensions:

Change−over switch *
0−20 mA or 4−20 mA   LED

⟳ CW / ⟲ CCW

* Before operation
of trimmer
remove screw

Trimming potentiometer for:
limit adjustment 20 mA *

4 mA adjustment *

75

17

56,6

1−2   20 4

Connection diagram:

+24 V 9
white

Voltage
regulator

U_B

Comparators

Decoder

0−20 mA
or
4−20 mA

1 I out
green

8=Pin−no. D−Sub plug

0V   brown

cable
length 0,4 m

Shielded
15 pin
D−sub plug

Option:
extension cable
length 2 m with:
15 pin
D−sub socket
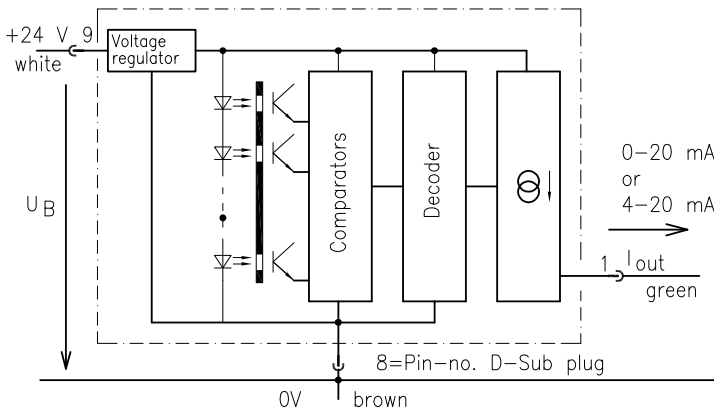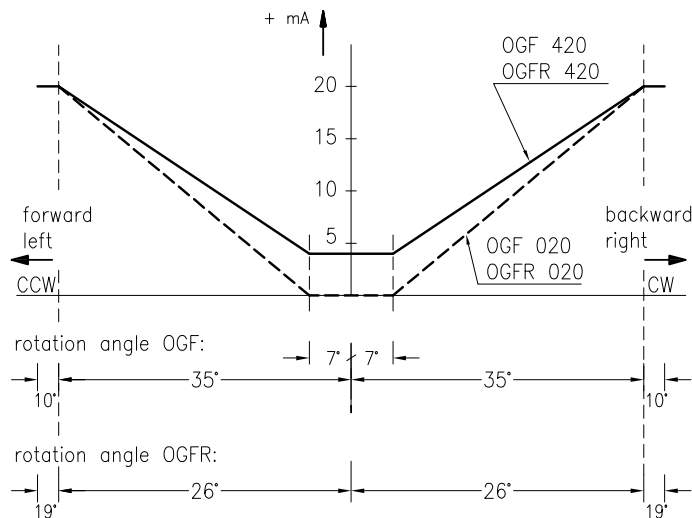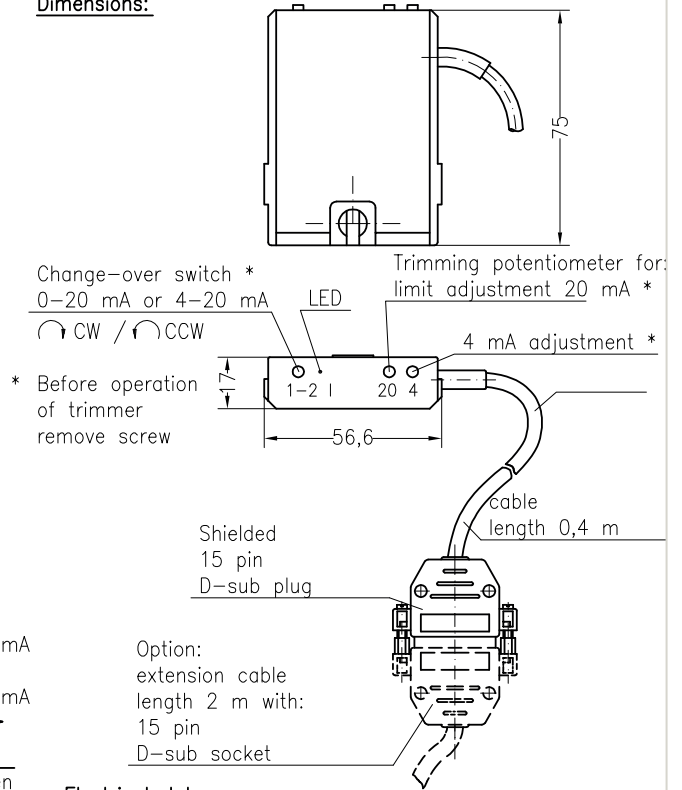
Electrical data:
Supply voltage: U_B =18...36 VDC polarity protected
Current consumption: max. 70 mA at 24 VDC
Max. load: $(+U_B −3$ V$)$ / 20 mA = R_{max}.
Minload: 0 Ohm
Output current: max. 20 mA, short circuit pro−
                           tected
Active angle: 35°−0−35° or 26°−0−26°
Temp. range: −20 °C to +60 °C
Temp.−stability: 0,5% by 20 mA (±100 µA)
Adjustment:
initial value/final value 4 mA : 3,8−4,2 mA
                           20 mA : 19−21 mA

Mechanical data:
Enclosure: metallized ABS
Connection: shielded cable LiYCY
                           LiYCY 5x0,14 mm^2 mit 15−poligem
                           D−Sub−Stecker
Code disc: Mylar
Scanning: 6 Bit gray−code disc
Max. rotation angle: 45°−0−45°
Inertia factor: $0,3x10^{−6}$ kgm^2
Protection: IP42
Resolution: 63−0−63 steps
Weight: 150 g

EMC:
EN 61000−6−2:2001
EN 61000−6−4:2001

Output signals:

+ mA

OGF 420
OGFR 420

20

15

10

5

forward
left

backward
right

CCW   CW

OGF 020
OGFR 020

rotation angle OGF:

7° 7°

35°   35°

10°   10°

rotation angle OGFR:

26°   26°

19°   19°

Option: see sheet E−Electronic−2
Extension cable LiYCY 5−pole 2 m
according to SS 13463 B

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-Encoder-6

Optoelectronic absolute encoder OGF
for joystick type VCS0

TI-Encoder-6

Errors and technical
changes reserved.

This absolut encoder shows a contactless system to be mounted directly to controller type VCS0.
The limit adjustment by trimming potentiometers.

Typ: OGF P20　I

Encoder, current operated
± 0...20 mA (polarisation)

Application:
Analogue output for
* PLC's
* control systems
* converters

Diagram:

+24 V
white

0 V
brown

± 0...20 mA
green
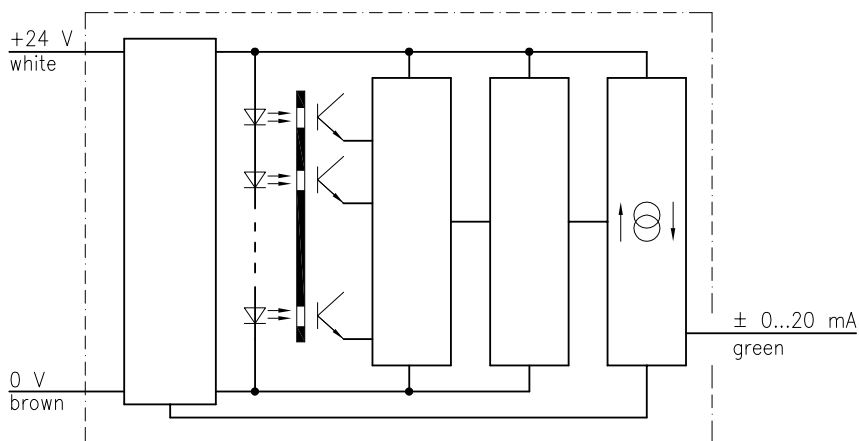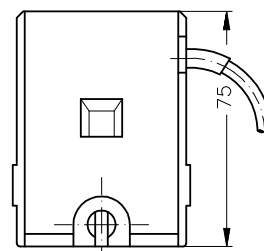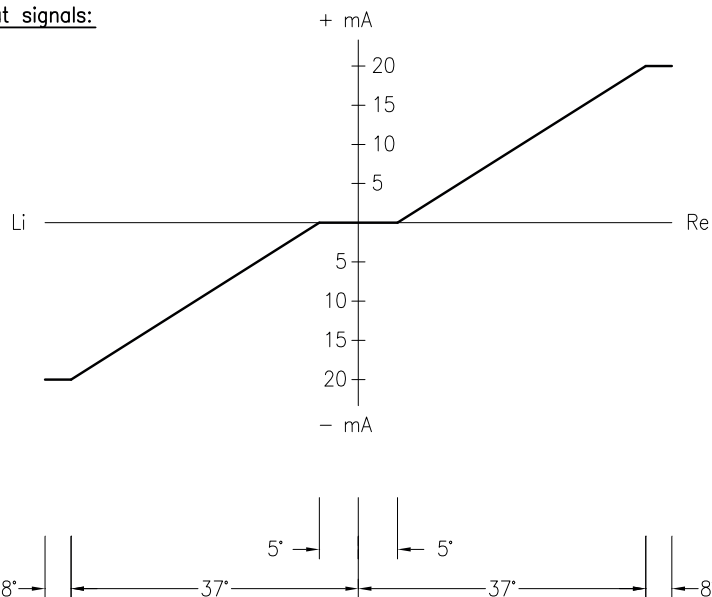
Trimming potentiometer for*:

Limit adjustment right

Limit adjustment left

18

56,6

H L

Cable length 0,4 m

15 pin
D−sub plug

15 pin
D−sub socket
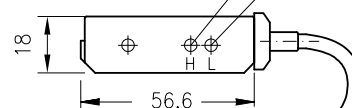
Cable
length 1,5 m

* Remove screws to adjust.

Output signals:

+ mA

20
15
10
5

Li

Re

5
10
15
20

− mA

5°   5°

8°   37°   37°   8°
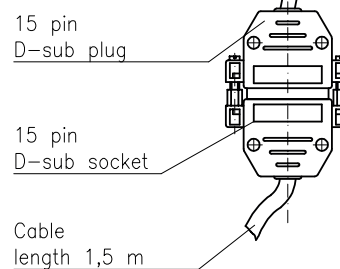
Electrical features:
Supply voltage: 18...36 VDC
Ripple voltage: < 10%
Supply current: max. 60 mA
Load: max. 500 Ohm
Temperature stability: max. 0,3%
Current each output: max. ±22 mA
                       short circuit proof
Active angle: 37°−0−37°
Temperature range: −20 °C...+60 °C
Life time: typ. 100.000 h

Mechanical features:
Enclosure: Metallized ABS
Connection: shielded cable
                LiYCY 3x0,25 mm^2
                length 2 m, D−sub−connector
Scanning: 6 bit code +
                2 direction signals
Angle: 45°−0−45°
Protection: IP42
Resolving: 63−0−63 steps
Dead band centre: 5°−0−5°
Dimensions: 75x56,6x17 mm

EMV:

EN 50081−1

EN 50082−2

Option: see sheet E−Electronic−2
Extension cable LiYCY 5−pole 2 m
according to SS 13463 B

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Optoelectronical absolute encoder OGP
with ProfiBus-DP PN0 Class 2 interface

TI-Encoder-7

TI-Encoder-7

The encoder OGP–DP will be connected directly on profibus; specification class 2 is fullfilled and encoder is programmable via profibus–DP.
The PN0–ident–number AAAB (Hex) is provided at PN0. Under file TR05AAAB.GSD is the log file available
Note for operation: Profibus–master must be able to send a parametric telegram.
Furthermore the configuration software of master must be able to display the encoder parameter structure.

Dimensions:

Coupling
NS046–84

Connections:

X1	Terminal, 4 pins	
Pin 1	Profibus, Data A	
Pin 2	Profibus, Data B	Profibus_IN
Pin 3	US–power supply	
Pin 4	0V–power supply	
X2	Terminal, 4 pins	
Pin 1	Profibus, Data A	
Pin 2	Profibus, Data B	Profibus_OUT
Pin 3	US–power supply	
Pin 4	0V–power supply	

A–A
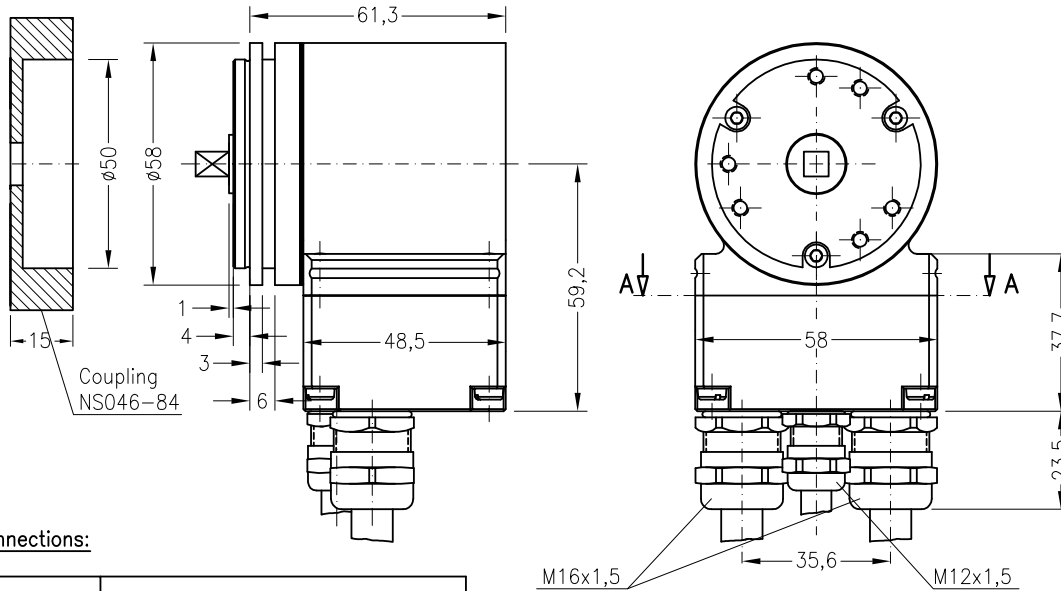
S1/S2: Selector switch for address
S3: Terminal resistance
On/Off

Service–display:

Status LEDs
–BUS RUN=green
–BUS FAIL=red

● = ON
○ = OFF
⊙ = FLASHING

GREEN
● : Operational
○ : No subbly voltage, hardware error
⊙ : Parameter– or configuration error
RED
○ : No error, bus in cycle
⊙ : No allocation to a master
● : No recoverable encoder defect

Technical data:

Step:	8.192
Rotations:	1
Interface:	Profibus DP
Code:	programmable
Supply voltage:	11–27 V
Output level:	RS485
Protection:	IP65
Temperature:	−20 °C...+70 °C
Flange:	ZB50
Axis:	□ 6x9 mm

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Optoelectronical absolute encoder OEP
with ProfiBus-DP PN0 Class 2 interface

TI-Encoder-8   **TI**-Encoder-8

The encoder OEP–DP will be connected directly on profibus; specification class 2 is fullfilled and encoder
is programmable via profibus–DP.
The PN0–ident–number AAAB (Hex) is provided at PN0. Under file TR09AAAD.GSD is the log file available
Note for operation: Profibus–master must be able to send a parametric telegram.
Furthermore the configuration software of master must be able to display the encoder parameter structure.

Dimensions:

Coupling
NS046–84

A–A

S1/S2: Selector switch for address
S3:   Terminal resistance
          On/Off

Connections:

X1	Terminal, 4 pins	
Pin 1	Profibus, Data A	
Pin 2	Profibus, Data B	Profibus_IN
Pin 3	US–power supply	
Pin 4	0V–power supply	
X2	Terminal, 4 pins	
Pin 1	Profibus, Data A	
Pin 2	Profibus, Data B	Profibus_OUT
Pin 3	US–power supply	
Pin 4	0V–power supply	

Service–display:

Status LEDs	● = ON
–BUS RUN=green	○ = OFF
–BUS FAIL=red	⊙ = FLASHING

GREEN
● : Operational
○ : No subbly voltage, hardware error
⊙ : Parameter– or configuration error
RED
○ : No error, bus in cycle
⊙ : No allocation to a master
● : No recoverable encoder defect

Technical data:

Step:	8.192
Rotations:	1
Interface:	Profibus DP
Code:	programmable
Supply voltage:	11–27 V
Output level:	RS485
Protection:	IP65
Temperature:	–20 ˚C...+70 ˚C
Flange:	ZB50
Axis:	□ 6x9 mm

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-Hall-2   Hall-sensors Axx for NS3G-Joysticks   **TI**-Hall-2

Errors and technical
changes reserved.

Technical data

Supply voltage U_B	5VDC ± 0,5V
Current consumption	< 20 mA
Load resistance	> 10 KΩ
Temperature	-40°C to +70°C
Center position	2,5V ± 0,1V

Versions
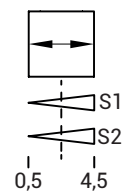
Type	A1x	A2x
Output signal	redundant, same direction	redundant, inverse
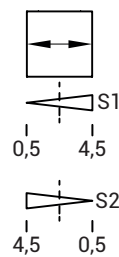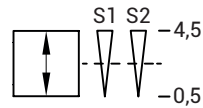
Type	A1Y	A2Y
Output signal	redundant, same direction	redundant, inverse
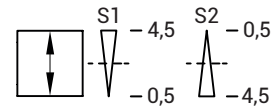
Assignment
Connection cable, single conductors, 450 mm long

Sensors	Function	Conductor color
A1x/A2x	U_B	red
	GND	brown
	S1	blue
	S2	green
A1Y/A2Y	U_B	orange
	GND	black
	S1	violet
	S2	yellow

Description:

The interface board ESS100A receives analogue and digital joystick input signals and will transmit this in formation to a CAN 2.0B interface.

The mechanical dimensions are integrated in the joystick enclosure of CS1G,NS3G and NNS0—Plwith bussystem.

Up to 4 analogue potentiometers with direction switches and a maximum of 16 digital signals (e.g. pushbuttons,...) may be transferred.

An easy function control is enabled by 2 LED.

Supply voltage + U_B:

Rating voltage:	9,5.. 32 V, non—bounce protection integrated
Load—dump protection:	max. tension + $U_B \leq 60$ V (max. 1 Minute)
Maximum ripple band:	10%
Current input:	at U_B = 12 V I < 80 mA
	at U_B = 24 V I < 50 mA

CAN interface:

Physical—layer:	2—wire interface, 5 V level acc. to ISO 11898
	short circuit protection at 24 V operation granted
Maximum bit rate:	1 MBit/sec
Maximum bit rate:	1 MBit/sec
Terminal resistance:	120 Ohm by plug configuration

Analogue inputs:

Number of inputs:	4 analogue inputs for potentiometer wiper
	4 analogue inputs for centre tap
	4x2 digital inputs for direction contacts
	(internal pull—up resistors)
Resolution of analogue channels:	10 bit of range 0..5 V_{REF}
Scanning rate per channel:	100 Samples/sec

Digital inputs:

Number of inputs:	16 digital inputs for switches in handle.
Function:	ground switched (internal pull—up resistors).
	switcing level: $U_{ACT} < 0,8$ V, $U_{INACT} > 2$ V
Status LEDs	
green	voltage supply ok
red	mistake indicator

Environmental conditions:

EMC requirements:	spurions radiation EN 61000—6—3
(complete joystick)	interference rejection acc.to EN 61000—6—2
	ESD EN61000—4—2
	radio frequency EN61000—4—3
	burst EN61000—4—4
	surge EN61000—4—5
	conducted disturbances EN61000—4—6
KFz pulse to supply	ISO 7637—2 (12 V/24 V, grade 4,
	loaddump limited to U_{Bmax}=60 V)
KFz pulse to data line	ISO 7637—3 (12 V/24 V)
Operating temperature:	−40 ˚C...+85 ˚C (only electronic)
Store temperature:	−55 ˚C...+105 ˚C (only electronic)

Standard CAN—Bus—PARAMETER:

PDO—type	0 (11—bit—identifier)
PDO ID	0x400 (11bit—identifier)
HOST ID	0x51
Local ID	0x00
baud rate	125 Kbit/sec
start mode	
node guard	0
msg rate	0
msg delay	9
curvature	0

Connection potentiometer
micro—match—socket:
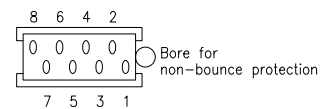
```
8  6  4  2
O  O  O  O  O   Bore for
O  O  O  O      non—bounce protection
7  5  3  1
```

PIN	Assignment
1	Direction forward
2	GND für Richtungsschalter
3	Direction backward
4	Potentiometer wiper
5	Potentiometer +5 V
6	Potentiometer GND
7,8	Potentiometer centre tap (option)

xxxxx:
Pin assignment CAN-bus:

D—sub plug	PIN	function
9—pin	1	NC
	2	CAN LOW
	3	CAN GND
	4	NC
	5	Shield
	6	GND (UB)
	7	CAN HIGH
	8	NC
	9	+UB
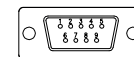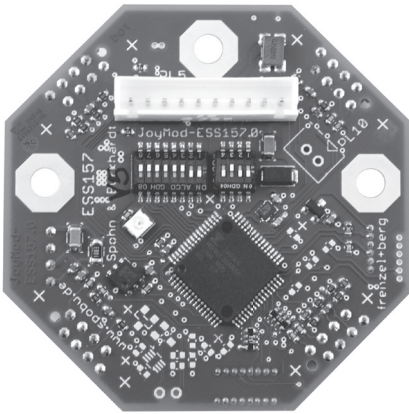
These interface boards receive analogue and digital joystick input signals and transfer the reprocessed information to CAN-bus available for CANopen or J1939.

The machanical dimensions are integrated in the joystick enclosure of CS1G, NS3G, NS2 and NNS0-PI with bus system. Up to 8 analog inputs for axis-motions is provided. Moreover 12 digital input signals (e.g. push button...) are available. CAN-bus and supply voltage are galvanic isolated.

Baud rate, node Id and termination resistor are easy adjustable via Dip-switch. Baud rate and Node Id may also be adjusted by SD0 or LSS. A LED an the board will show you the actual bus-status with different blink intervals.

CAN interface

ESS0157-I-CANopen:	CANopen draftstandard:
	DS301 Version 4.0
	DS305 Version 3.0 Layer Setting Service
	DS401 Version 2.0
ESS0157-I-J1939:	SAE-J1939-71 Standard for joystick

Note: Baud rate, node Id and termination resistor via Dip-switch or SD0, LSS adjustable.

Supply

Voltage:	10.. 36 VDC, integrated reverse voltage protection
Current input:	100 mA

Analogue inputs

8 analogue inputs for axis-potentiometer feasible for 4 axis groups, each two channels 8 digital inputs for switch concerning direction of movement
12 digital inputs for function buttons

Example: Assignment for CANopen when mounting in Spohn + Burkhardt Joystick

D-sub plug 9-pin	PIN	Function
	1	NC
	2	CAN LOW
	3	CAN GND
	4	NC
	5	Shield
	6	GND (UB)
	7	CAN HIGH
	8	NC
	9	+UB

EMC/Environmental conditions

EMC when mounting in Spohn + Burkhardt Joystick:	spurions radiation acc. DIN EN 61000-6-3 (VDE 0839 Teil 6-3) / 09.2011-EN 61000-6-3:2007 + A1:2011
	spurions radiation acc. DIN EN 61000-6-2 (VDE 0839 Teil 6-2) / 03.2006-EN 61000-6-2:2005
Operating temperature:	-25°C...+70°C (only electronic)
Store temperature:	-55°C...+100°C (only electronic)

Options

• Manual detection sensor

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

BUS	CAN open

□-□	AI 4	DI 12	DO 8

IP 57	-30°C +70°C	12- 32 VDC
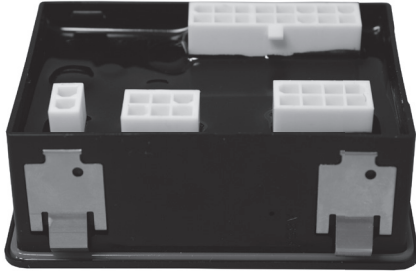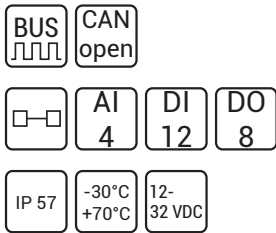
The compact, encapsulated CAN I/O Module enables the simple integration of digital and analog signals (e.g., from joysticks, control devices, indicators, etc.) into a CAN network.

Its SubCan capability allows modules to be cascaded, thus increasing the I/Os without additional addressing effort.

Per module, 4 analog inputs and a total of 16 digital I/Os are available, of which, depending on the programming, max. 12x In and max. 8x Out. 2 outputs with max. 2 A.

Optionally, a logical connection of inputs and outputs can be programmed, e.g. to control outputs depending on frequency.

Inputs and outputs, SubCans as well as the CAN interface are connected via sealable module plugs with different pinning.

The sturdy plastic housing, with waterproof encapsulated electronics, has lateral clamping springs for fast and vibration-proof mounting and is therefore ideally suited for installation in consoles and consoles.

Applications include the decentralised connection of joysticks, control units, sensors in CAN networks of vehicles and machines, etc.

Interface

CANopen with	Baud rate adjustable via LSS (in typical CAN gradation up to max, 1000 kBit/s), address and termination resistor
SAEJ1939	on request

Supply

Operating voltage:	24 VDC (12...32 VDC)

Inputs/outputs:

Analog:	4x input for potentiometer/HALL, total load max. 150 mA
Digital:	Version 1: 8x input and 8x output (24 VDC-max. 200 mA, 2 of which have 24 VDC-max. 2 A)
	Version 2: 12x input and 4x output (24 VDC-max. 200 mA, 2 of which with 24 VDC-max. 2 A)
	Versions switchable via SDO service data object.

Ports

CAN, SubCans: integrated module connectors JST
Analog/digital inputs: integrated module connectors AMP-Mate-N-Lok
  Suitable connection sockets with or without connection cable available as accessories.

Dimensions

Mounting opening 74 x 53 mm for snap-on housing
External dimensions 78.4 x 57 mm
Height approx. 33 mm plus connecting cables

Environmental conditions

Operating temperature range:	-30°C...+70°C
Protection class:	Electronics encapsulated, front IP65, rear with sealed connections up to IP57

Accessories

Connection cable set 2m long for digital, analog inputs, power supply

Description:

The controllers HS2, CS1G, NS3G and NNS0—PI—Bus may be equipped with PROFIBUS—DP—interface.
The electronic card has inputs for 4 potentiometers (4 axis analogue), 4 analogue inputs for potential control at centre tap (e.g. wire failure control), as well as digital inputs for direction signals. Furthermore 16 digital inputs for pushbuttons (e.g. in handle) and 8 outputs for LED (5 V, 10 mA) are available.

Supply voltage:

Operational voltage:	10...30 V, non—bounce protection integrated, filter
Max. operational voltage:	36 V (short circuit protection not granted)
Max. ripple band:	10%
Current input:	U_B = 12 V : I < 110 mA
	U_B = 24 V : I < 60 mA

PROFIBUS—interface:

Feature:	IEC 61158, IEC61784
Max. baud rate:	12 MBaud, automatically detected
PNO—Ident no:	AAAB
GSD—file:	TROAAAAB.GSD
Address:	Adjustable from 3...99
Transmission	RS485
Termination	ohne

Analogue inputs:

Number of inputs:	4 analogue inputs for potentiometer wiper
	4 analogue inputs for centre tap poti
	4x2 digital inputs for direction contacts
	(Internal pull—up resistors)
Resolution of analogue channels:	10 bit of range 0..5 V_{REF}

Digital inputs:

Number of inputs:	16 digital inputs for switches in handle
Function:	ground switched (internal pull up resistors)

Digital outputs:

Number of outputs	8 digital outputs for 10mA at (0,5/4,5) V

Environmental conditions:

EMC requirements:	spurions radiation acc. to DIN EN 61000—6—3 : 2007
(complete controller)	interference rejection acc. to DIN EN 61000—6—2 : 2006
Operating temperature:	−35 °C...+70 °C (only electronic)
Store temperature:	−40 °C...+80 °C (only electronic)
relative humidity	98% no condensation

Pin assignment profibus:

Example:

D—sub plug	PIN	function
9—pin	1	NC
	2	NC
xxxxx	3	L_B—wire
xxxxx	4	NC
	5	NC
	6	NC
	7	NC
	8	L_A—wire
	9	NC

Connection poti via micro—match—socket:

8 6 4 2

0 0 0 0
0 0 0 0   Bore for non—bounce protection

7 5 3 1

PIN	Assignment
1	Direction forward
2	GND für Richtungsschalter
3	Direction backward
4	Potentiometer wiper
5	Potentiometer +5 V
6	Potentiometer GND
7,8	Potentiometer centre tap (option)

Error messages:

LED	Function	Cause
green	out	no operation
	fast blinking	check parameters
	continuous on	ready for operation
red	out	no failure, bus in cycle
	blinking	no connection to bus
	continuous on	failure

Data:

X—axis: ⎫
Y—axis: ⎪
Z—axis: ⎬
W—axis: ⎭

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 Bit

8—bit—analogue data
10—bit—analogue data
Lo—limit analogue value
Hi—limit analogue value
Wire failure
Preswitch set
Revert switch set

Digital inputs:

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 Bit
16 15 . . . . 1 input

Option:	additional for externe on and out signals
ESS130	ausgangsignale see TI—ProfiBus—2

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Description:
The PCB ESS130 expands the range of application for Profibus–DP–interface ESS094A and ESS094B (TI–ProfiBus–1).
The PCB devides via optocoupler in– and output signals of the Profibus–DP–interface.
Free digital in– and outputs of the Profibus–DP–interface for control devices may be used externally of the joystick.

Supply voltage:

externally 24 VDC

Digital inputs:

8x galvanically isolated

Digital outputs:

4x galvanically isolated, 10 mA bei 24 VDC

Example: joystick
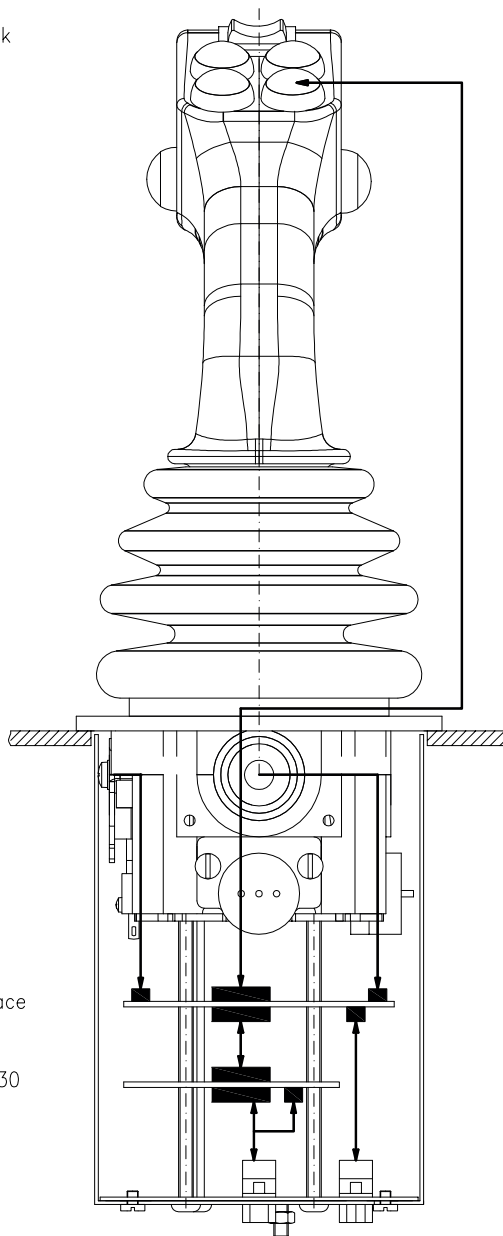
Profibus–DP–interface
ESS094A/ESS094B

Circuit board ESS130

Price:
SPOBU	SPOBU
Type	Art.–Nr.
ESS130	29353

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Description:

The profinet−interface−component ESS132 is equipped with 2 boards electrically coupled and a front plate with M12−connection. This allows to connect a 2−axis joystick CS1G or NS3G onto profinet.
Concerning the analogue conversion of the lever deflection, direction informations of each axis, other devices in joystick handle (e.g. push button, rocker switch,...) the component is equipped with analogue and digital inputs.
Furthermore digital outputs are available in order to activate LED's in the handle.

Supply voltage:

Operational voltage $+U_B$:	12...28 V, non−bounce protection
Max. operational voltage:	30 VDC (short circuit protection not granted)
Max. ripple band:	10%
Current input:	U_B = 12 V : I < 110 mA U_B = 24 V : I < 60 mA
Connection:	round plug, M12, 4 pole, male A−coded

Profinet IO:

	IEC 61158, IEC 61784
Profinet−specification:	V2.2
Software stack:	V3.1
Conformance class:	conformance class B
Physical Layer:	profinet 100Base−TX, fast ethernet, ISO/IEC 8802−3
Output code:	binary
Cycle time:	>= 1 ms (IRT/RT)
Transfer rate:	100 MBit/s, CAT−5 cable shielded (STP), ISO/IEC11801
Address:	per name (given by software), mapping of name−MAC when booting
Integrated switch:	yes
Real−time−class:	RT class 1 frames (RT), RT class 2 frames (RT), RT class 3 frames (IRT)
Support of:	DCP, LLDP, SNMP
GSMDL−file:	DSDML−V2.2−SPOBU−master controller−20110214.xml
Connection port 1 / port 2:	bus−plug M12, 4−pole, female, D−coded
Bus status display:	each port 2 LED

Input/output:

Inputs for the conversion of lever deflection in X−axis:
- 1x analogue input for potentiometer−wiper (resolution max. 12 bits)
- 2x digital input for directions (ground switched, internal pull−up resistors)
- 1x analogue input for controlling wire failure of centre taps
- connection suitable for micro−match−plug

Inputs for the conversion of lever deflection in Y−axis:
- 1x analogue input for potentiometer−wiper (resolution max. 12 bits)
- 2x digital input for directions (ground switched, internal pull−up resistors)
- 1x analogue input for controlling wire failure of centre taps
- connection suitable for micro−match−plug

Digital inputs for internal devices:
- 8x digital input for push buttons (ground switched, internal pull−up resistors)
- connection suitable for Molex plug−case, 12 pole with crimp−contacts

Digital outputs for internal devices:
- 8x digital TTL−output 5 VDC (max. 10 mA)
- connection suitable for Molex plug−case, 12 pole with crimp−contacts

Environmental conditions:

Operating temperature:	−20 ˚C...+80 ˚C (only electronic)
Store temperature:	−40 ˚C...+80 ˚C (only electronic)
Relative humidity	98% (no condensation)
Protection:	IP00, higher protection is achieved by installation into controller
EMV requirements:	spurious radiation acc. to DIN EN 61000−6−3: 2007
(valid for complete controller)	spurious radiation acc. to DIN EN 61000−6−2: 2006

Front plate:

USB

| AI 4 | DI 19 |

| -15°C +75°C | 4,5 - 5,5 VDC |
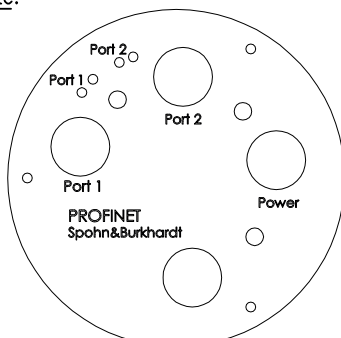
Description
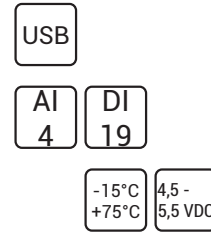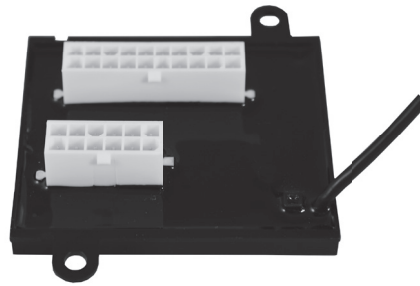
The compact, encapsulated USB module enables easy connection of digital and analog signals (e.g. from joysticks, control units, ...) to a PC operating system.

It is equipped with a double-level pin header X1 for 4 analog inputs and a double-level pin header X2 for 19 digital inputs. The connection to the PC is made with a 1.5 m long connection cable with USB-A plug.

Applications include joysticks, command devices in remote control stations, simulators, camera controls, ...

Interface:

    USB
    System requirements: Windows 7, Windows 10, Linux
    with APP "Set up USB game controller".

Supply:

    Via USB (4,5...5,5 VDC)

Inputs:

    4x analog input for potentiometer/HALL, total load max. 50 mA
    19x digital input, total load max. 30 mA
    For pin assignment see the supplement Installation Instructions.

Ports:

    To PC with 1,5 m cable with USB-A plug
    Analog/digital inputs: AMP MATE-N-LOK double-level pin headers
        Suitable connection plugs with or without connecting cable available
        as accessories.

Dimensions:

    Basic housing 73 x 63 mm plus mounting brackets, for further dimensions see
    installation notes.

Ambient conditions:

Operating temperature range:	-15°C...+75°C
Protection class:	encapsulated electronics, pin header IP00
Interference emission:	DIN EN 61000-6-3
Interference immunity:	DIN EN 61000-6-2

Supplies:

Connection set:	1x connection cable with 20-pin plug, one end open cable, length approx. 2 m
	1x connecting cable with 12-pin plug, one end open cable, length approx. 2 m
	SPOBU Item no. 56806
Connector set:	1x connector housing 20-pole, 20x crimp contact
	1x plug housing 12-pole, 12x crimp contact
	SPOBU Item no. 57155

Description

The sensor ESS080 composed of sensor plate ESS080K... and analysing electronic ESS080A is working according
to the capacitive principle. If you approach the hand to the sensor plate, the relay (clamp 10, 11, 12) will switch.
This distance is in the scope of some millimeters which is adjustable.

Sensor plate ESS080K at standard handle NS0 ES41/42CR:

Sensor flat=
chrome plated cap
NS0 ES42CR
17437
Spring

Sensor plate
ESS080K

Sensor plate
with handle
ESS080K + NS0ES41/42CR

Sensor wire
2 core with shield
(max. 2,5 m length)

white   brown

Analysing electronic ESS080A:

Top hat rail

Adapter for
hat rail

Fuse

Trimmer for sensitivity

Fuse 315mAT

LED on

LED off

Sensitivity LED allowable area

12–pole connector
max. 1,5 mm²
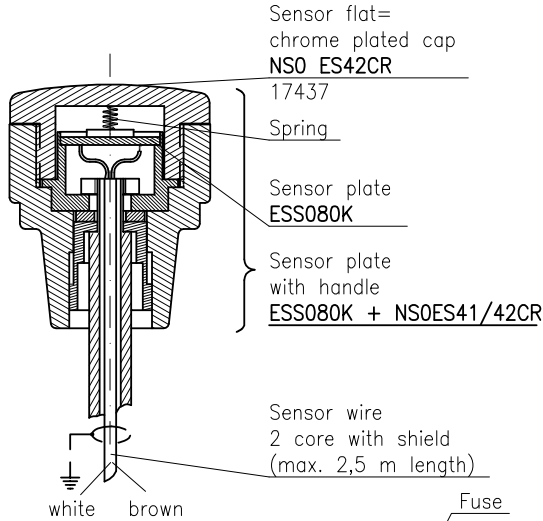
Notes:
* Wire break secure
* Operation pilot lamps
* high sensitivity

* Potential free relay output
  with high current output
* fast connecting with
  12 pin clamp

Technical data:

Supply Voltage:	24 VDC ±20%
Wire length:	max. 2,5 m
Switching capacity:	250 VAC 6 A
relay:	24 VDC 2A
Temp. range:	−20 °C bis +70 °C
Input current:	ca. 50 mA
Dimensions:	105x80x25 mm
Weight:	110 g
Protection:	IP 20
Fuse:	315 mAT

EMC:		
	ESD	IEC801−2
	Burst	IEC801−4
	Surge	IEC801−5
	Spurious rodiation	EN 55022, EN 55011
	interference rejection	EN 61000−4−3 (level 3)
	interference rejection	EN 61000−4−6 (level 3)

Display for:

25   10   88   74   10

Relay on

Failure

Sensitivity

Supply
voltage

SPOHN & BURKHARDT
D 89143 BLAUBEUREN TEL. 07344/211-0

ESS080A

Analysing electronic

Supply Voltage: 24 VDC ±20%
Switching capacity: 250 VAC 6 A
                   24 VDC 2A

Fuse: 315 mAT

Set up sensitifity

*Connect wires
*Set up sensitivity
 with pot on the side
 to requested value
*After set up the sensitivity
 pilot lamp must be illuminated
 if not, the sensitivity
 is to sensitive.

LED's

Yellow
Relay ON

Red
Fault

Green
Sensitivity
pilot lamp

Green
Supply Voltage
pilot lamp

Terminals

12
11
10
9
8
7
6 Sensor white
5 Sensor brown
4 Shield
3 ⊥
2 ⊥
1 +

79

Connection relay:
NO
NC
Common

white
brown

Circuit
to sensor plate

0V DC
Ub 24 VDC

Note:

Operator has to observe requirements of data sheets.
The capacitive sensor is not allowed for critical safety applications.

Adjustment instruction:

* Connect ESS080A and ESS080K−...
* Supply voltage
* Adjust requested sensitivity with trimmer and at the same time control it with LED .
  When LED is illuminating at requested sensitivity, adjustment is ok, if not: sensor adjustment is in prohibited
  range because sensitivity is too high.
  Correction in order to establish save function: Diminuish with trimmer the sensitivity until LED is illuminating.

		Spobu Mat.−Nr.
Sensor plate round	ESS080K	12869
Sensor plate squared	ESS080K−1	17844
Sensor plate for handle	ESS080K−UG/−UGN/−UGD	
Sensor plate with standard handle	ESS080K−NS0ES41/42CR	19769
Sensor plate with ball handle (sensitivity on the side and below)	NS2ES98−1KT	20517
Analysing electronic	ESS080A	12958

Description:

The capacitive system consisting of sensor plate ESS080K and evaluation electronics ESS111 was specially developped for the controllers CS1G and NS3G. The integrated sensor plate may be installed in various handles.
The integrated sensor plate changes its output depending on the distance from hand to sensor.
The sensitivity of evaluation is adjustable by potentiometer.
This specifies the switch point of output (relais and transistor).

Technical data:

Supply voltage:	$+U_B$ 19,2...28,5 VDC
Rated current:	I 0,1 A (without relais)
Relais output:	$I_{max.}$ 1 A
	U =24 V
Temperature range:	−20 ˚C...+70 ˚C

LED display for:

Operating voltage on:	Relais V4:	green
Control of sensitivity:	Relais V9:	green
Error:	Relais V11:	red
Sensor activated:	Relais V18:	yellow

Pin assignment ESS111:

X4.1 2 3

R7
X3.2
X3.1

V9
V11
V18

X2.3 2 1
X1.2 1
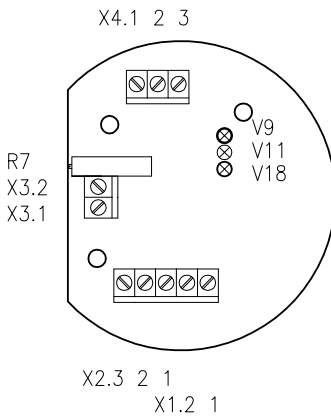
X1	Supply voltage
X1.1	$+U_B$
X1.2	GND (0 V)
X2	Connection to ESS080K
X2.1	Output
X2.2	GND (0 V)
X2.3	Shield (0 V)
X3	Transistor output
X3.1	GND (0 V)
X3.2	open drain
X4	Relais output
X4.1	
X4.2	Design:
X4.3	Sensor not activated

X1/X2/X3/X4 = Screw clamp

Transistor output: open drain output

The transistor will get conductive in case of operating sensor.

Transistor   ESS111 $I_{max.}$= 500 mA
                                    $U_{max.}$= 30 V
                    X3.2
                    Fuse
Shield diode   X3.1

Pin assignment ESS080K:

shielded wire   Signal
                       GND
                       Shield
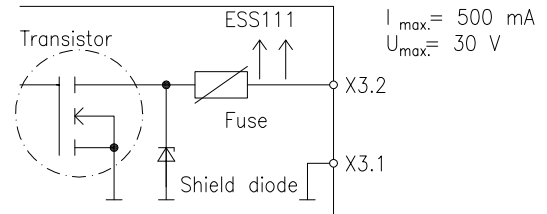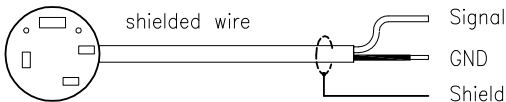
Adjustment instruction:

* Connect ESS111 and ESS080K
* Supply voltage
* Adjust requested sensitivity with potentiometer R7 and at the same time control it with LED V9.
  In case V9 is illuminated at requested sensitivity, adjustment is ok, if not: sensor adjustment is in prohibited range because sensitivity is too high.
  Correction in order to establish certain function: Diminuish with R7 the sensitivity until LED V9 is illuminating.

Application: Transmission of max. 12 signals with a shielded twin wire cable through shaft.

Push button gold contact

MUX−sender ESS097A

Connecting terminal

Deadman gold contact

Universal handle TYPE: UGN (see TI−UG/UGN)

Shaft

Shielded four wire cable
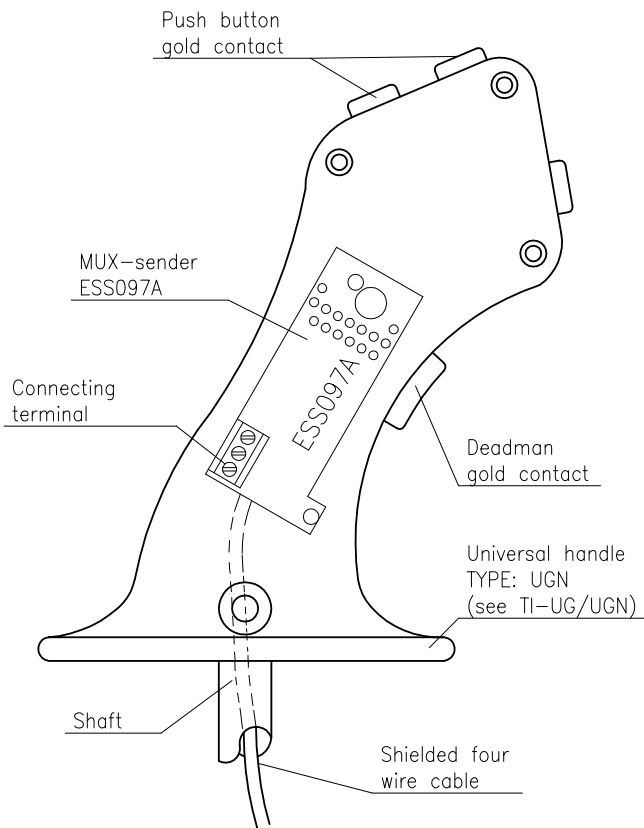
Explanation:

Mux−system (ESS097) contains of sender (ESS097A),
12 inputs and receiver (ESS097, per output
1 relay with 1 change−over contact)
Sender is scanning permanently over 12 push button positions
and is transmitting data serially by shielded twin wire cable
to receiver whereby data are emitted, free of potential, by relays.

Features:

Mux−system is for serial transmission of non−security relevant state.

* HF−filter on each input
* Non−bounce contacts
* Double transmission with parity−bit
* Data comparison with demultiplexer
* Block transmission with defined addresses
* Defined sequence with plausibility control
* Switch off in case of transmission error
* Watchdog to control processors
* Supply voltage with reverse and EMC protection
* Delay 50 ms transmission

Technical data:

Supply voltage:	19,2... 28,8 VDC
Supply current:	400 mA, all inputs low
Temp.−range:	−40 °C till +70 °C
Capacity:	5 A at 250 V−50 HZ
	2 A at 30 VDC

Diagnostics:

LED display	Meaning	colour
RDY−LED (V107)	−Is lighting when demultiplexer is ready for operation −Is blinking when transm. error	green
Output 1...12 (V201...V212)	−Is lighting when output active	yellow

Sender:

50
X16.1 X16.2 X16.3
23

X12 X15
X11 X10
X9   X8
X7   X13
X6   X5
X4   X3
X2   X1 X14

Holes ø3 mm
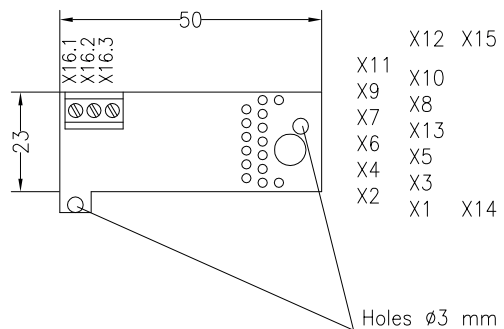
Scheme multiplexer−system:

S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12

X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15

Multiplexer (sender) ESS097A

X16.1 X16.2 X16.3

red yellow brown

shielded four wire cable
standard   2 m
length max. 10 m

X102.1 X102.2 X102.3

PE   PE

Y4   Y2

Demultiplexer (receiver) ESS097B

K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12

X201.1 X201.2 X201.3 ... X212.1 X212.2 X212.3   X101.1 X101.2 X101.3

0V
UB
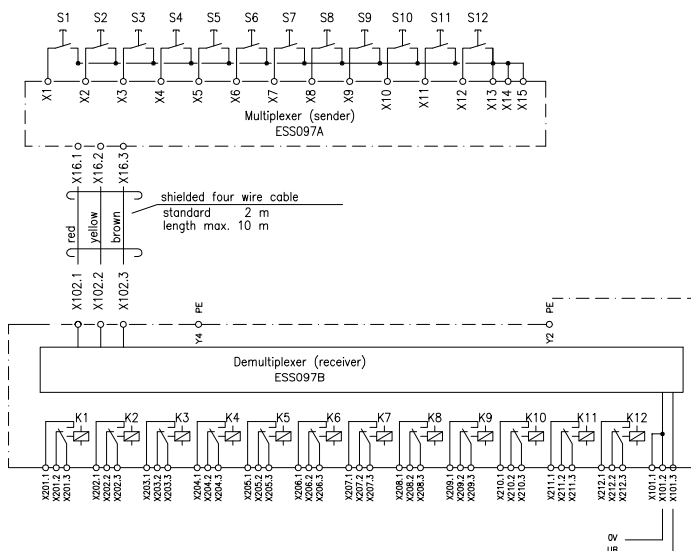
EMC: EN61000−6−2
EN55011:1998+A1:1999

SPOBU
Mat.−Nr.

MUX−System with 8 Relais ESS097−8   12879
MUX−System with 12 Relais ESS097−12   23701

Prices for handles see sheet G−UGN

1–0–1 Stellungen mit Mikroschaltern
1–0–1 steps with micro switches
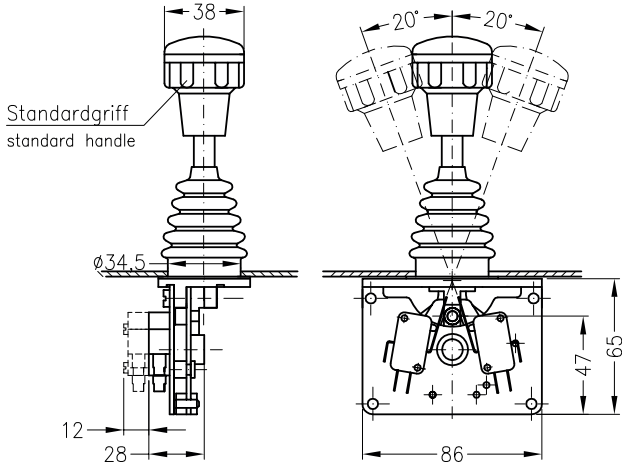
stufenlos mit Mikroschalter und Potentiometer
with micro switch and potentiometer
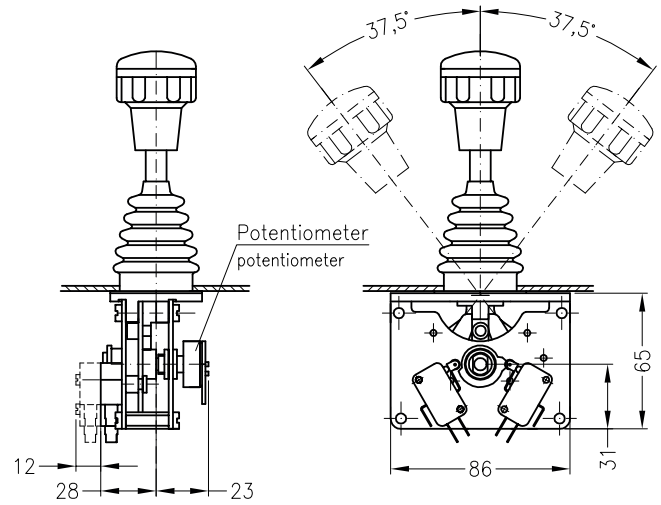
mit Kontaktblock NS0 für max. 4–0–4 Stellungen
Potentiometeranbau möglich
with NS0 double contactblock max. 4–0–4 step, potentiometer possible
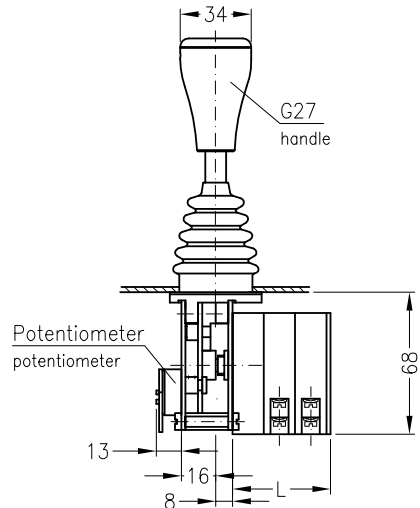
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3
L	35	50	65

mit Ballengriff
with palm handle
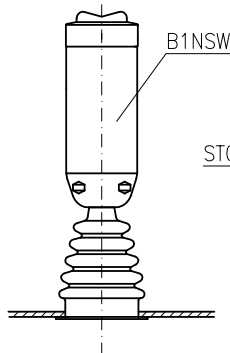
mit mechanischer Nullstellungsverriegelung
with mechanical interlock
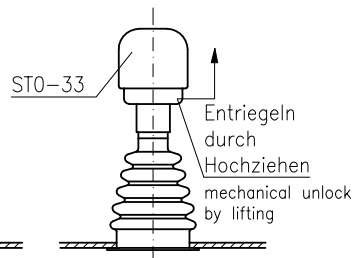
Befestigungsmaße
mounting dimensions
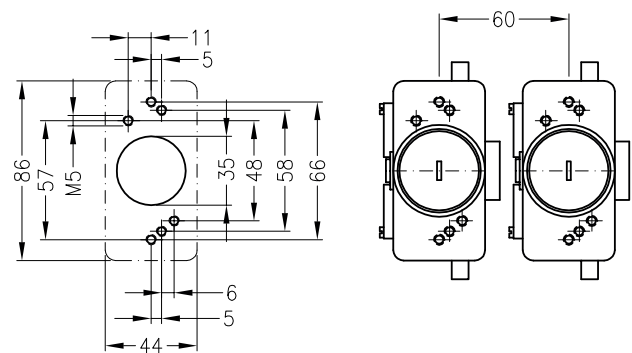
Installation dimensions

External diameter with escutcheon   ø 70 mm
Mounting dimensions   ø 40 mm to 51 mm
Mounting depth   60 mm from mounting plate

Mechanical properties

Lever deflection   ± 26°
Impact force   max. 400 N at 90 mm distance from pivot point
Impact force in Z-direction ± 400 N (compressive and tensile loading)
Life cycle   > 6 million operating cycles under the influence of climate (-40°C bis +85°C)
Brake power   8N ± 1
Retraction force   4N ± 1

Electrical characteristics

Potentiometer BD1010   conductive plastic, redundant
                        resistance: per lane 10 KOhm
                        connection: 6-polig Mat N Lok

Assignment deflection joystick - connection potentiometer / extension cable
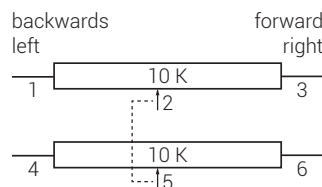
Pin Mat N Lok	Color extension cable
1	red
2	yellow
3	blue
4	white
5	violett
6	grey

Potentiometer BLR55 technical informations see TI-POTI-6
Potentiometer B55 technical informations see TI-POTI-5

Reedcontact for mechanical interlock   1 ⟍ 2   1 opener

Connection: 2-pin Mat N Lok

General characteristics

Working temperature   -40°C to +85°C
Storage temparature   -50°C to +90°C
Degree of protection from outside   IP67
(with standard handle and boot)

Version: Handle G45,
spring return
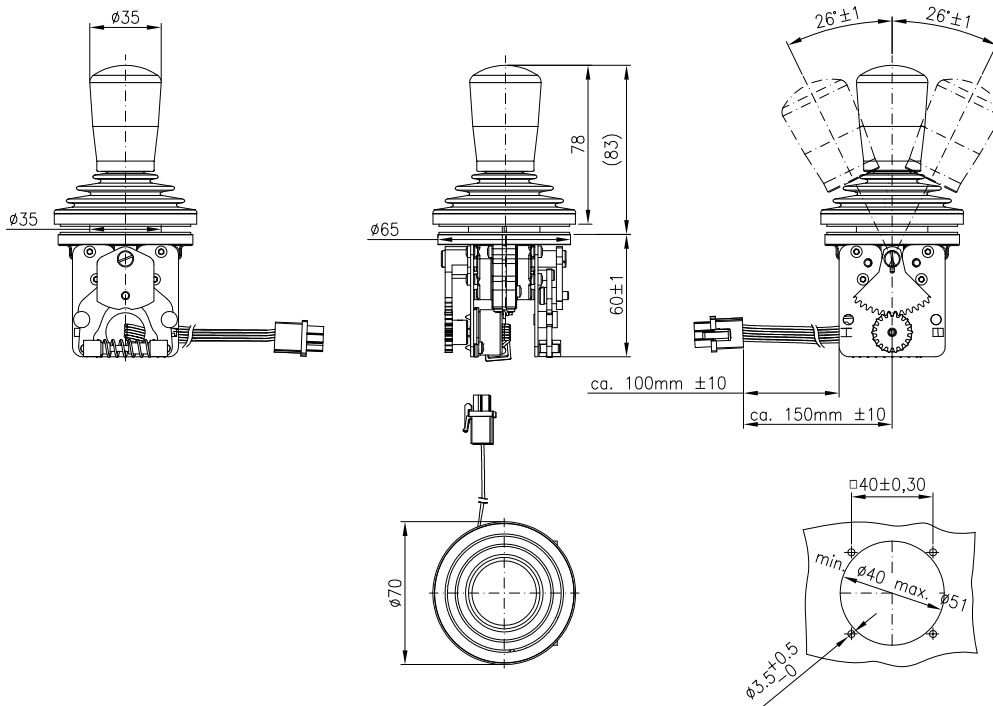
Version: with mechanical in-
terlock, handle G45-Z, friction
brake, reed contact

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren
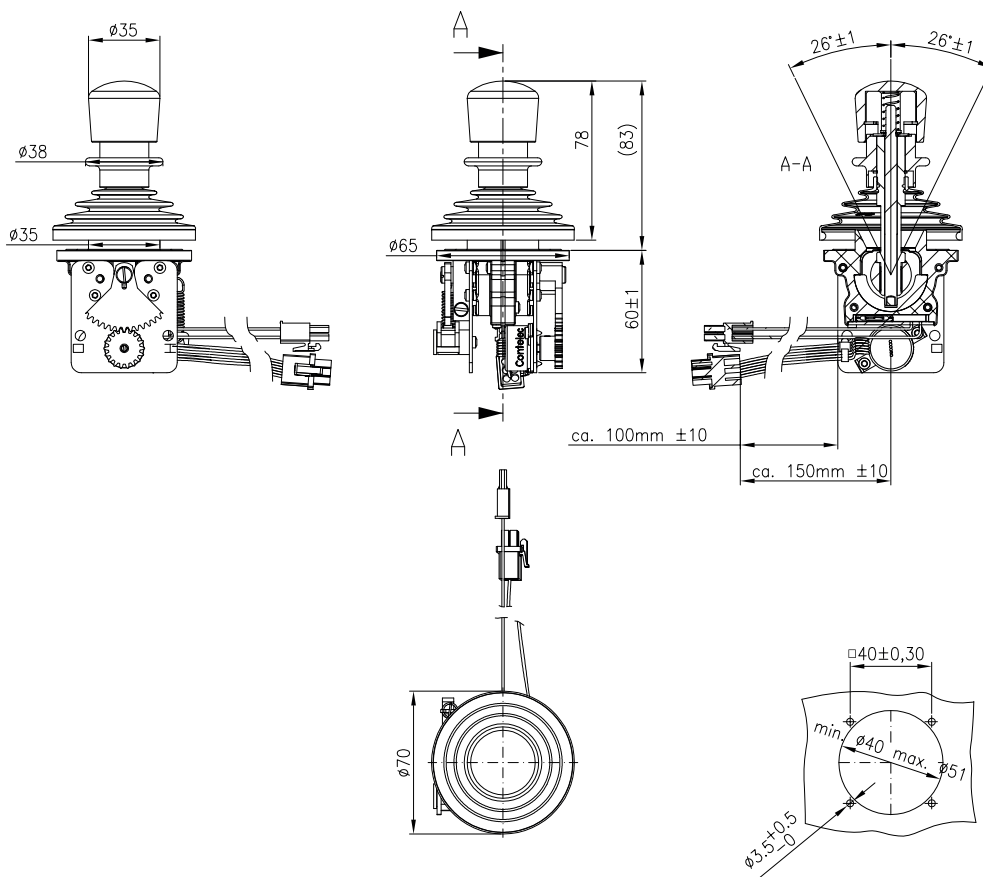
1−0−1 Stellungen mit Selbstrückgang
1-0-1 steps with spring return

~80
20° 20°

Einbauöffnung
⌀40 mm
mounting dimension

50
⌀50
⌀40

30

Lötanschlüsse
soldering taps
⌀50

Ohmsche Last 250 V ∼ AC 2 A
ohmic value 24 V = DC 1 A

Silberkontakt
mit
Goldauflage
silver contact,
gold plated

Silberkontakt
silver contact

Mikroschalter 1S, 1Ö
microswitch 1NO, 1NC
M0N5ER(HD)OS

Mikroschalter 1 Wechsler
microswitch 1change over contact
M0N5ER(HD)WK

M0N5VR(HD)OS OS

M0N5VR(HD)WK WK

---

evtl. mit Taste
push button in handle on request

80
20° 20°

Einbauöffnung
⌀30 mm
mounting dimension

3,2

~67
⌀64
⌀30
18 18

30

18 18

Flachsteckanschluß 6,3x1
faston taps
84

Ohmsche Last 250 V ∼ AC 6 A
ohmic value 24 V = DC 1 A
ind.250 V ∼ 3 A
cos. ⌀ = 0,7 Φ

Silberkontakt
silver contact

Mikroschalter 1 Wechsler
microswitch 1change over contact

M0N6ER(HD)W

M0N6VR(HD)W W

25
25
6,5

6,5
6,5
25 25

6,5

max. 3 Doppelkontakte
max. 3 double cont. elements

80

28° 28°

~67
⌀64

60

max. 5−0−5 Stellungen
mit oder ohne Selbstrückgang
5-0-5 steps

zwangsbetätigte Tastkontakte mit
Goldauflage oder Silberauflage
force actuated goldcontacts or
silvercontacts

Typ
GM0N6E...
SM0N6E...

GM0N6V...
SM0N6V...

Gewicht ~ 0,1 kg
weight ~ 0,1 kg

⌀40

Einbauöffnung
⌀40 mm
mounting dimension

6,5
6,5

25   25   16,5

Einbauöffnung
ø40 mm
mounting dimension

ø40

evtl. mit Taste
pusch button in handle
on request

~80
~67
~ø64

28°   28°

62

max. 3 Doppelkontakte
max. 3 double cont. elements
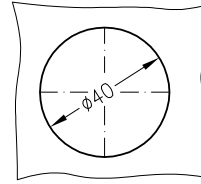
evtl. mit Impedanzwandler 4−20 mA
potentiometer − conductiv plastic

Potentiometer ohne Mittelanzapfung
potentiometer without centre tap

140°   140°
320°
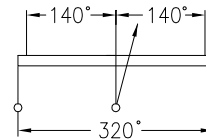
Leitplastik
conductivplastic
 1 kOhm   Typ : B1
 5 kOhm   : B5
10 kOhm   : B10

Achtung Schleiferbelastung max. 1 mA
warning: wiper current max. 1 mA

Potentiometer mit Mittelanzapfung und
Kurzschlußstrecken
potentiometer with centre tap and short circuit path

10°   140°   140°   10°
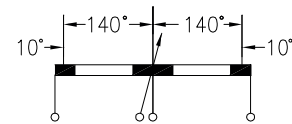
Leitplastik
conductiv plastic
 5−0−5 kOhm   Typ: B55
10−0−10 kOhm   Typ: B1010

Achtung: Schleiferbelastung max. 1 mA
warning: wiper current max. 1 mA

Drahtgewickelte Potentiometer − 2 Watt
potentiometer wire wound − 2 Watt
PD 200   1−0−1   kOhm
                5−0−5   kOhm
               10−0−10 kOhm

Typ: SMON6ER−−B   Gewicht: 0,16 kg
       GMON6ER−−B   weight: 0,16 kg

                           Potentiometertyp
                           potentiometertype
       Schaltung
       circuit

       SMON6VR−−B−−B−−   Gewicht: 0,2 kg
       GMON6VR−−B−−B−−   weight: 0,2 kg

Andere Potentiometer und Ohmwerte,
bzw. Spannungs− oder Stromausgang
auf Anfrage
other potentiometer or ohmic value
on request

Grundausführung mit Doppelkontaktelementen
standard version with double contact elements:

Ansicht von unten
bottom view

max. 3 Doppelkontakte je Seite
max. 3 double contacts each side

Nullkontakt-element
zero contact element

12
12
12
12
40   40

Auf Wunsch H–Taste
on request H–push button

max. 37°   max. 37°

Weitere Einbauten im Hebel siehe Seite G...
additionals see sheet G...

105 oder 140
or

max 5

64

Doppelkontaktelement
double contact element

Nullkontaktelement
zero contact element

Ausführung mit Potentiometer PD550
version with attached potentiometer PD550

Gummistulpe V041N
rubber boot V041N

Doppelkontaktelement
double contact element

Potentiometer PD550
potentiometer PD550

67.5
45
2
8

Ausführung mit optoelektronischem Absolutwertgeber
siehe Blatt TI–Encoder–4 bis –6
version with optoelectronical absolute encoder according see sheet TI-Encoder-4 till -6

Absolutwert-geber OGF
absolute encoder

max. 3 Doppelkontaktelemente
max. 3 double contact elements

75.5

Montageanleitung   Ausführung 96...
assembly instructions: version   72...
                                    S...
                                    S0...

3) Folie und Deckrosette aufklipsen bzw. ver-schrauben, Gummistulpe aufziehen
clip legend foil and escutcheon plate and respectively bolt and mount rubber boot

2) Dichtung und Rosetten-halter auf Schalthebel auflegen und mit Schalter verschrauben
put on dust seal and attachment plate and bolt together

Schalttafel
panel

1) Schalthebel und Gummistulpe durch Schalttafelbohrung hindurchstecken
pass lever and rubber boot through panel bore

Antriebsblock
drive

Montageanleitung   Ausführung S1...
assembly instructions: version

2) Rosette auf Schalttafel auflegen und mit Schalter verschrauben
put on escutcheon plate on panel and bolt together with controller

max. 2

Schalttafel
panel

1) Schalthebel, Stulpenhalter-rosette mit abgezogener Gummistulpe durch Schalttafelbohrung hindurchstecken
pass lever, rubberholder and pulled off rubber boot through panel bore

3) Gummistulpe aufziehen
mount rubber boot

Stulpenhalter-rosette V048-100-A1
rubberholder V048-100-A1

Antriebsblock
drive

Gewicht ~0,5 kg/Schalter
weight ~0,5 kg/controller

Ausführung VCS0 96...
mit transparenter Kunststoff–Rosette 96x96 und Beschriftungsfolie
with transparent escutcheon plate 96x96 and inscription foil

Gummistulpe V041N
rubber boot V041N

Rosette V048K3
escutcheon

Rosettenhalter V048R1
attachment plate

□96

67
4.5
67
∅81

Befestigungsbohrung
mounting holes
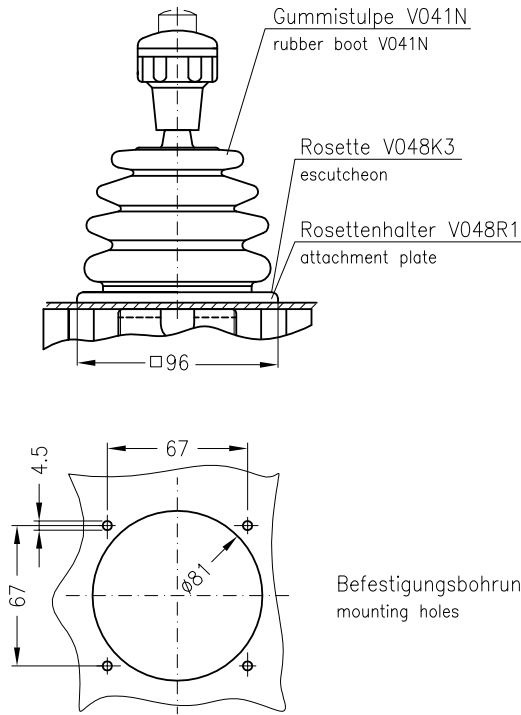
Hinweis:
Auf Wunsch mit geschraubter schwarzer Aluminiumrosette 96x96
On request with screwed black aluminium escutcheon plate 96x96

Ausführung VCS0 S1...
mit Stulpenhalterrosette S1
with bracket for rubber boot + escutcheon plate

Universalgriff UGN
universal handle UGN

Gummistulpe V041N
rubber boot V041N

Stulpenhalter
V048–100–A1
bracket

Aluminium Rosette
V048–100–A2
aluminium escutcheon
plate

max. 2 mm

□96

85
∅6,5
85
∅81

Befestigungsbohrung
mounting holes
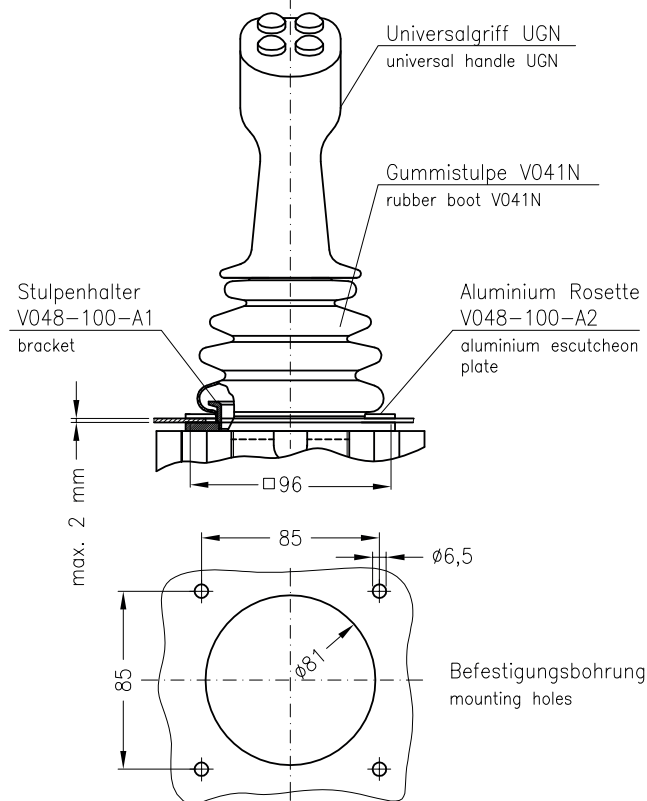
Ausführung VCS0 72...
mit Aluminium Rosette schwarz 72x72, nicht beschriftbar
with aluminium escutcheon plate black 72x72, not inscribable

Gummistulpe V040KE2
rubber boot V040KE2

Rosette V0044
escutcheon

Rosettenhalter V028R
attachment plate

□72
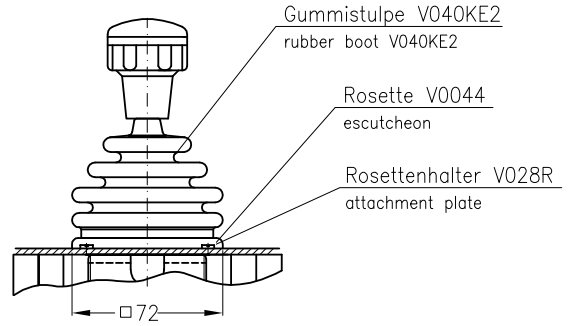
Ausführung VCS0 S0...
mit Stulpenhaltering S0
with bracket for rubber boot

Gummistulpe V040KE2
rubber boot V040KE2

Stulpenhaltering CS092–04A
bracket

Schlauchband
ZY72x5
clamp

4.5
42
42
∅50

Befestigungsbohrung
mounting holes for
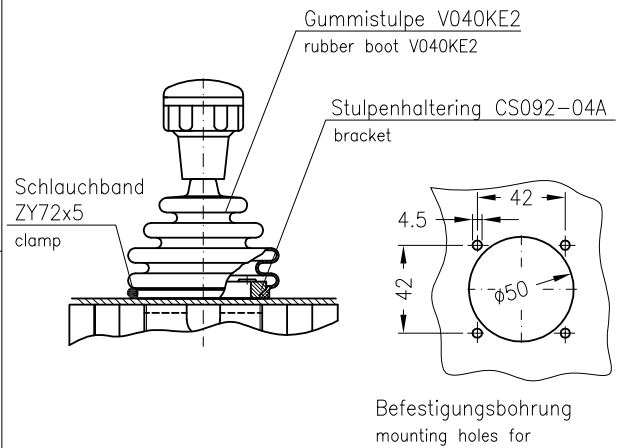
Ausführung VCS0 S...
mit Stulpenhaltering S
with bracket for rubber boot

Gummistulpe V041K
rubber boot V041K

Stulpenhaltering CS1–22
bracket

Schlauchband
ZY80x5
clamp
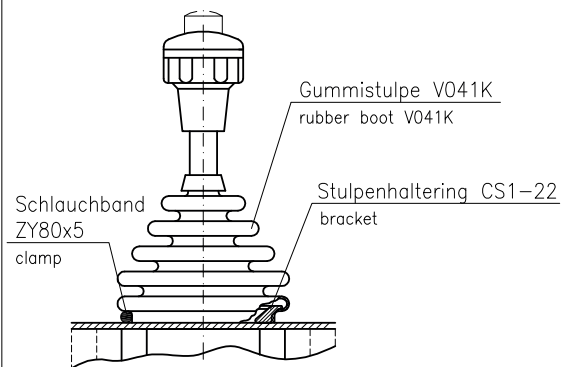
Gewicht ~0,5kg/Schalter
weight ~0,5kg/controller

Typ   CS0—M1

      M0— M1

Material: PC grau
material: PC grey

122

120

70 15

max. 37°

L

max. 105

110

4,5

90
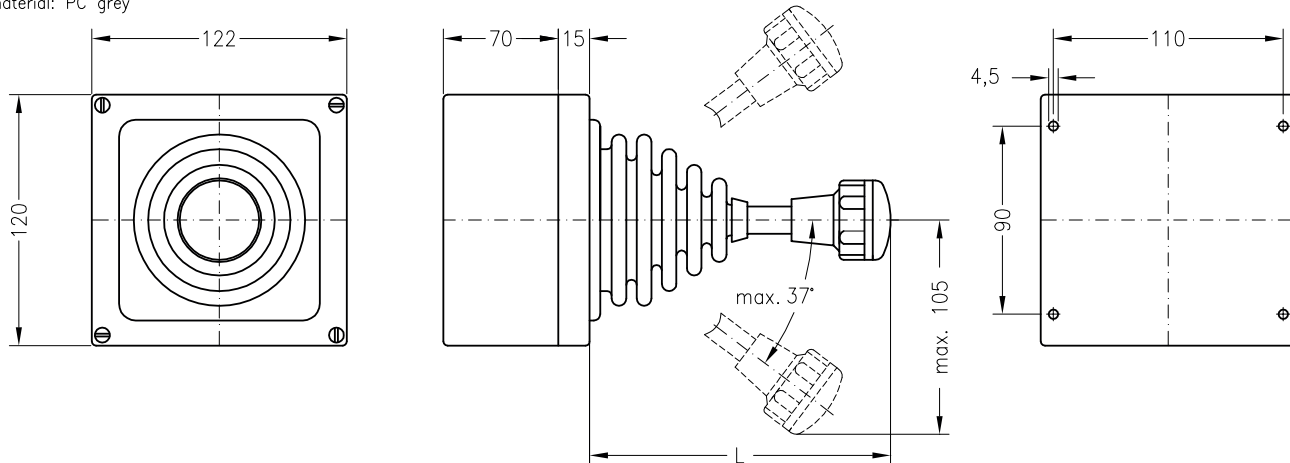
Gewicht ca. 0,8 kg
weight app. 0.8 kg

Hebellänge   L= VCS0 105 mm oder 140 mm
shaft length   M0 67 mm bzw. 80 mm mit HD

Typ   CS0—M3

      M0— M3

Material: PA 6 gelb
material: PA 6 yellow

183

164

130

26,5

5

60

279

260

228

25

Scharnier
hinge

Verschluß
fastener

Auf Wunsch auch ungebohrt
on request without hole

ø29

40

50

100

L

max. 37°

max. 105
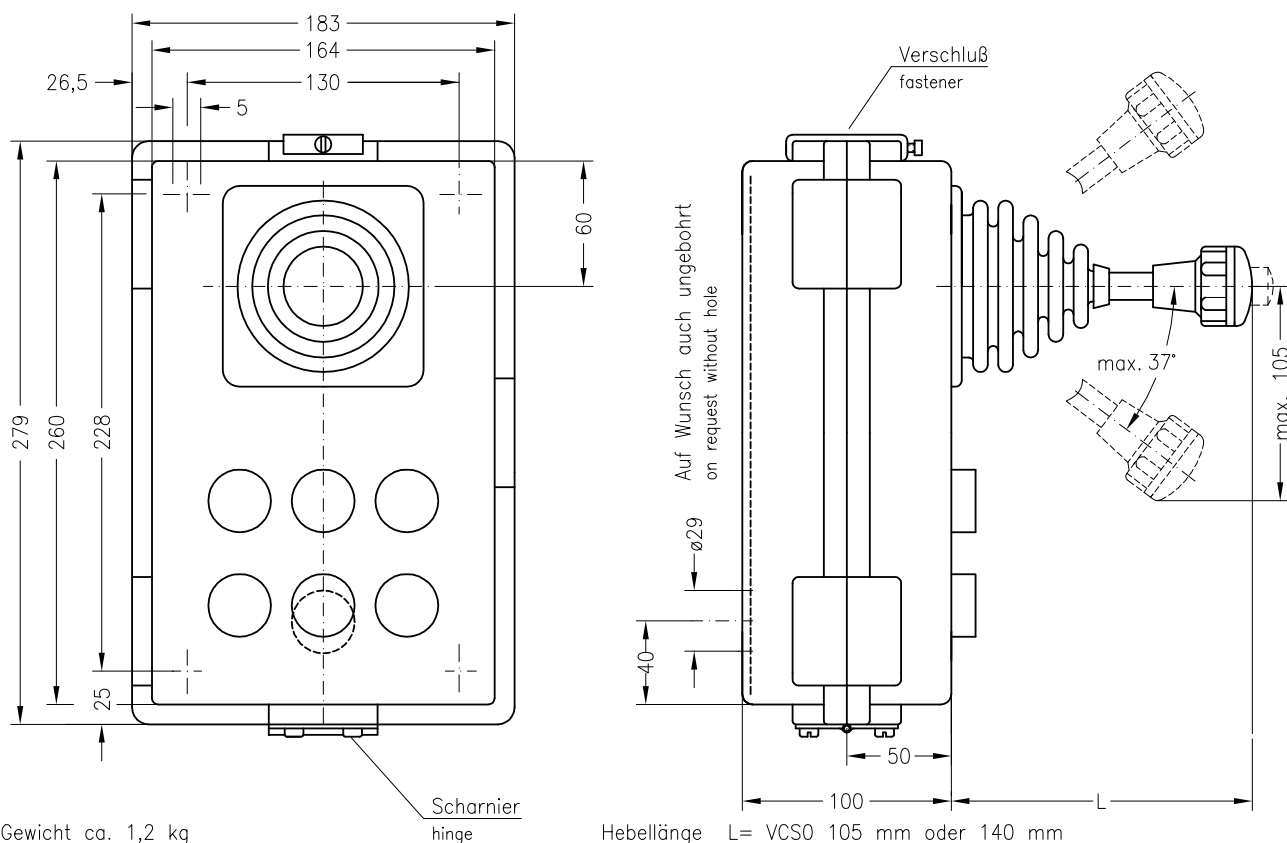
Gewicht ca. 1,2 kg
weight app. 1.2 kg

Hebellänge   L= VCS0 105 mm oder 140 mm
shaft length   M0 67 mm bzw. 80 mm mit HD

Typ **VNS0−F−E**   Antrieb E   siehe Seite J−NS0−3/5
type   drive E   see sheet J−NS0−3/5

Einbauten im Hebel
siehe Seite G−...
additionals
see sheet G−...

180
145
110

□96

M4
□ 67
□ 83

L1

Kontaktanschlüsse
connections

75

W H

Kupplung für Geber
attachment for transmitter

Anordnung
arrangement

N U
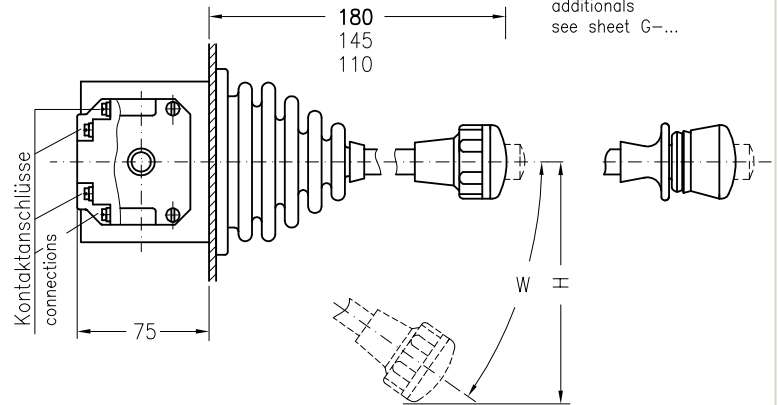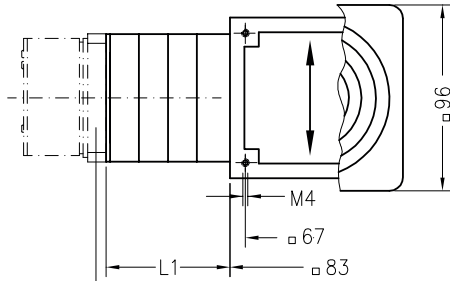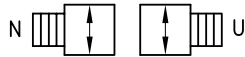
Gewicht:
Antriebsblock ~0,9 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~0,9 kg
each double contact ~0,08 kg

Bohrungen in der
Befestigungswand
mounting dimensions

Ø80

67

4,5

67

Typ **VNS0−F−V**   Antrieb V   siehe Seite J−NS0−3/5
type   drive V   see sheet J−NS0−3/5

Blickrichtung
view direction

□83
□67
M4

L1

□96

L2

Kontaktanschlüsse
connections

180
145
110

Einbauten im Hebel
siehe Seite G−....
additionals
see sheet G−....

W H

Querrichtung
cross direction

Kupplung für Geber
attachment for transmitters

Anordnung
arrangement

N U   Y X
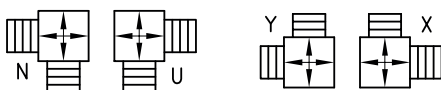
Gewicht:
Antriebsblock ~1,2 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,2 kg
each double contact ~0,08 kg

bei 180 mm Hebel by lever 180 mm		
Position	W	H ~ mm
1−0−1	13°	70
2−0−2	21°	100
3−0−3	30°	135
4−0−4	29°	130
5−0−5	35°	150
6−0−6	36°	155
7−0−7	38°	160

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

Anordnungsbezeichnung: arrangement description:

VNS0–E		VNS0–V		VNS0–V	
linke Hand left hand	rechte Hand right hand	linke Hand left hand	rechte Hand right hand	linke Hand left hand	rechte Hand right hand
N	U	N	U	U	N
U	N	Y	X	X	Y

Blickrichtung view direction
Quer cross direction

Schaltrichtungsbezeichnung   switch direction arrangement

linke Hand left hand

```
      1
      |
      L
3 ——— ○ ——— 4
      |
      2
```

rechte Hand right hand

```
      5
      |
      R
7 ——— ○ ——— 8
      |
      6
```

Bohrungen in der Abdeckung   bores on cover

ø80
67
M4
67

Bohrungen in der Rückwand
bores back wall

67
4,5
67

96
ø83
ø67
L2
M4
L1

~70
180
110
145
W
W
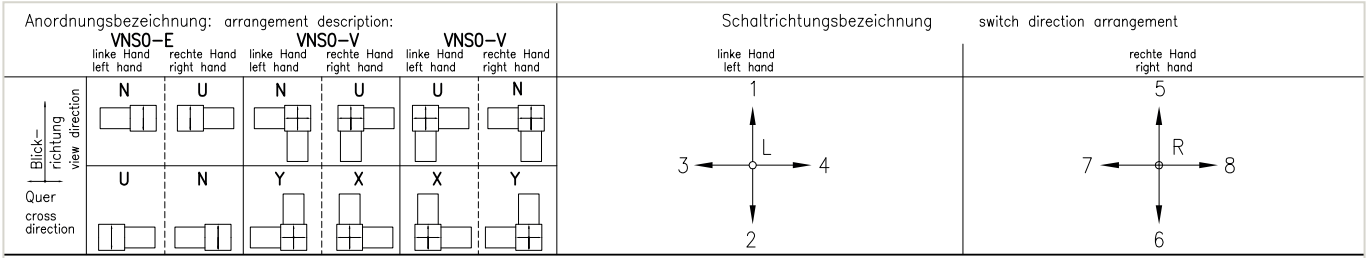
Anzahl Doppelkontaktelemente number of double contact elements	1 ohne Rastung without notches	2	3	4	5	6	7	8	9	10
L1 L2 L3	35 (22)	50 (37)	65	80	95	110	125	140	155	170

Hebelausschlag (Hebel 180 mm) lever deflection (lever 180 mm)								
Stellungen steps	H	W	Stellungen steps	H	W	Stellungen steps	H	W
1–0–1	70	13°	3–0–3	135	30°	5–0–5	150	35°
2–0–2	100	21°	4–0–4	130	29°	6–0–6	155	36°

Antriebsart: drive arrangement:

E
Typ VNS0 N U T E(R) L1
Gew.: Antriebsart: weight: drive block 0,9 kg
je Doppelkontakt-element: each double contact element 0,08 kg
83
83 L1

V
VNS0 N U X Y V(R) L1 L2
1200 g
80 g
83
L2

G
VNS0 T G(R) L1
1200 g
80 g
83
L2

H
VNS0 T H(R) L1 L2
1450 g
80 g
83
L2
L1

M
VNS0 T T M(R) L1 L2
Gew.: Antriebsblock: weight: drive block 1,4 kg
je Doppelkontakt-element: each double contact element 0,08 kg
L2
83
L1

GG
NS0 T T GG(R) L1 L2
83
L2
L1

Typ **VNS0—FG**
type

M4

Antrieb G
siehe Seite J—NS0—4/5
drive G
see sheet J—NS0—4/5

67   □96   75   180 140 110   □83   L1

Kupplung für Geber
attachment for transmitters

Einbauten im Hebel
siehe Seite G—...
additionals
see sheet G—...

Gewicht:
Antriebsblock ~1,2 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,2 kg
each double contact ~0,08 kg

Typ **VNS0——FH**
type

M4
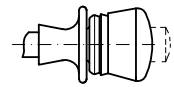
Antrieb H
siehe Seite J—NS0—4/5
drive H
see sheet J—NS0—4/5

67   □96   75   □83   L2   L1

Quer cross

Blickrichtung view direction

max.42°   max.135
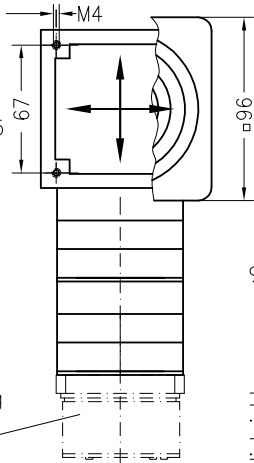
Geber nur für Betätigung
in Blickrichtung möglich
attachment for transmitter
only in view direction
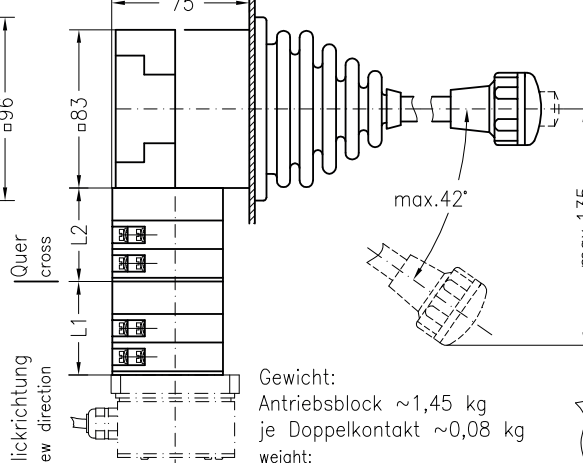
Gewicht:
Antriebsblock ~1,45 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,45 kg
each double contact ~0,08 kg

Bohrungen in der
Befestigungswand
mounting dimensions

□80   67   4,5   67
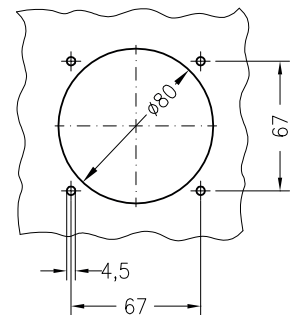
Typ **VNS0——FM**
type

Antrieb M
siehe Seite J—NS0—3/5
drive H
see sheet J—NS0—3/5

67   Querrichtung cross direction   L2   □83   L1

Gewicht:
Antriebsblock ~1,2 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,2 kg
each double contact ~0,08 kg

Blickrichtung view direction

max.42°   max.135

Kupplung für Geber
attachment for transmitters

Einbauten im Hebel
siehe Seite G...
additionals
see sheet G...

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

Typ **VNS0—A**
type
Antrieb A   siehe Seite J—NS0—3/5
drive A   see sheet J—NS0—3/5
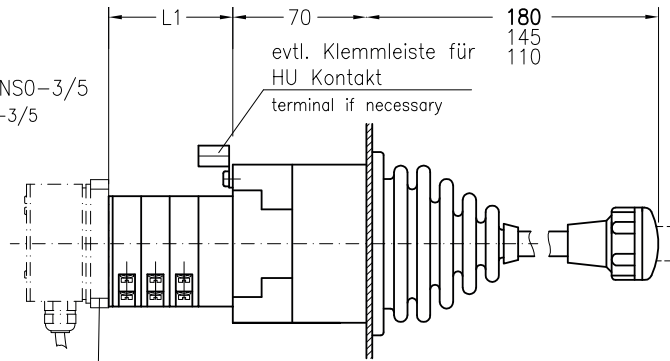
L1   70   **180**
145
110

evtl. Klemmleiste für
HU Kontakt
terminal if necessary

□96

M4
□67   Kupplung für Geber
□83   attachment for transmitters

Gewicht:
Antriebsblock ~1,2 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,2 kg
each double contact ~0,08 kg

Einbauten im Hebel
siehe Seite G—4/4
additionals
see sheet G—4/4

Bohrungen in der
Befestigungswand
mounting dimensions

ø80

67

4,5
67
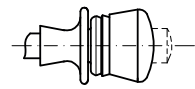
Typ **VNS0——EA**
type
Antrieb EA   siehe Seite J—NS0—3/5
drive EA   see sheet J—NS0—3/5
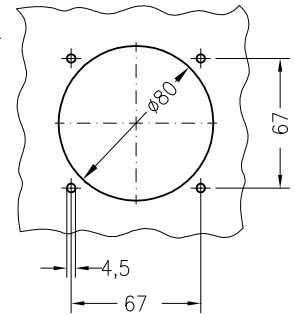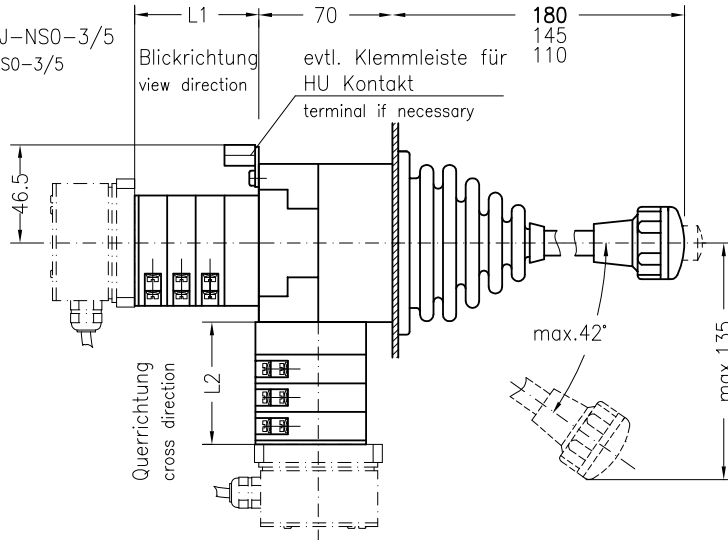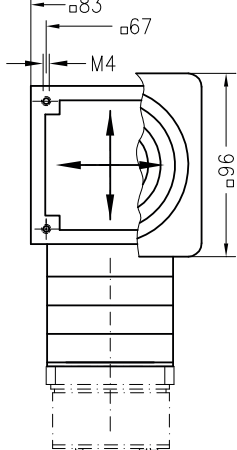
□83
□67

M4

□96

L1   70   **180**
145
110

Blickrichtung
view direction

evtl. Klemmleiste für
HU Kontakt
terminal if necessary

46.5

L2

Querrichtung
cross direction

max.42°

max.135

Gewicht:
Antriebsblock ~1,2 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,2 kg
each double contact ~0,08 kg

Typ **VNS0——AA**
type
Antrieb AA   siehe Seite J—NS0—3/5
drive AA   see sheet J—NS0—3/5

L1   L2   70   **180**
145
110

Blickrichtung   Quer
view direction   cross

evtl. Klemmleiste
terminal if necessary

max.42°

max.135
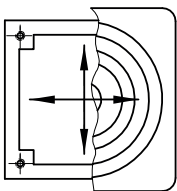
Geber nur in
Blickrichtung möglich
attachment only possible
for view direction
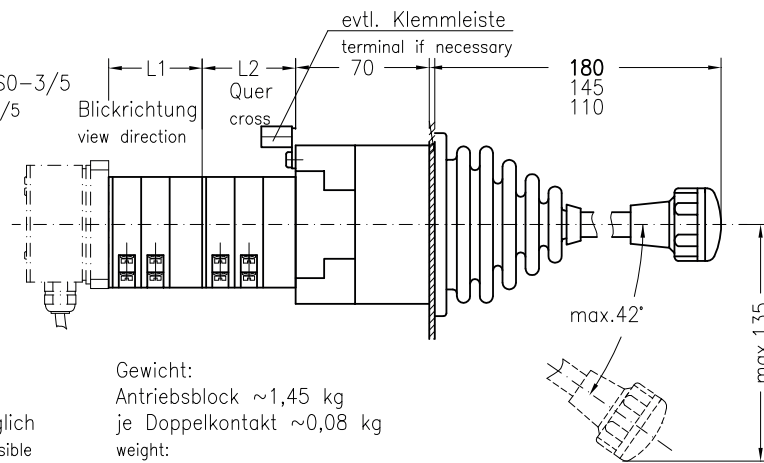
Gewicht:
Antriebsblock ~1,45 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,45 kg
each double contact ~ 0,08 kg

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

Einbauten im Hebel siehe Seite G...
additionals see sheet G...

max.135 — max.135
35° 35°

180 / 80 / 53 / 115 / ~22 / 124 / L2 / L1

L2 — L1

15 / 50 / 80 / 6 / 105 / 120 / 136

M5 / 50 / 70 / 90 / 120

Länge 1 nicht möglich
length 1 not possible
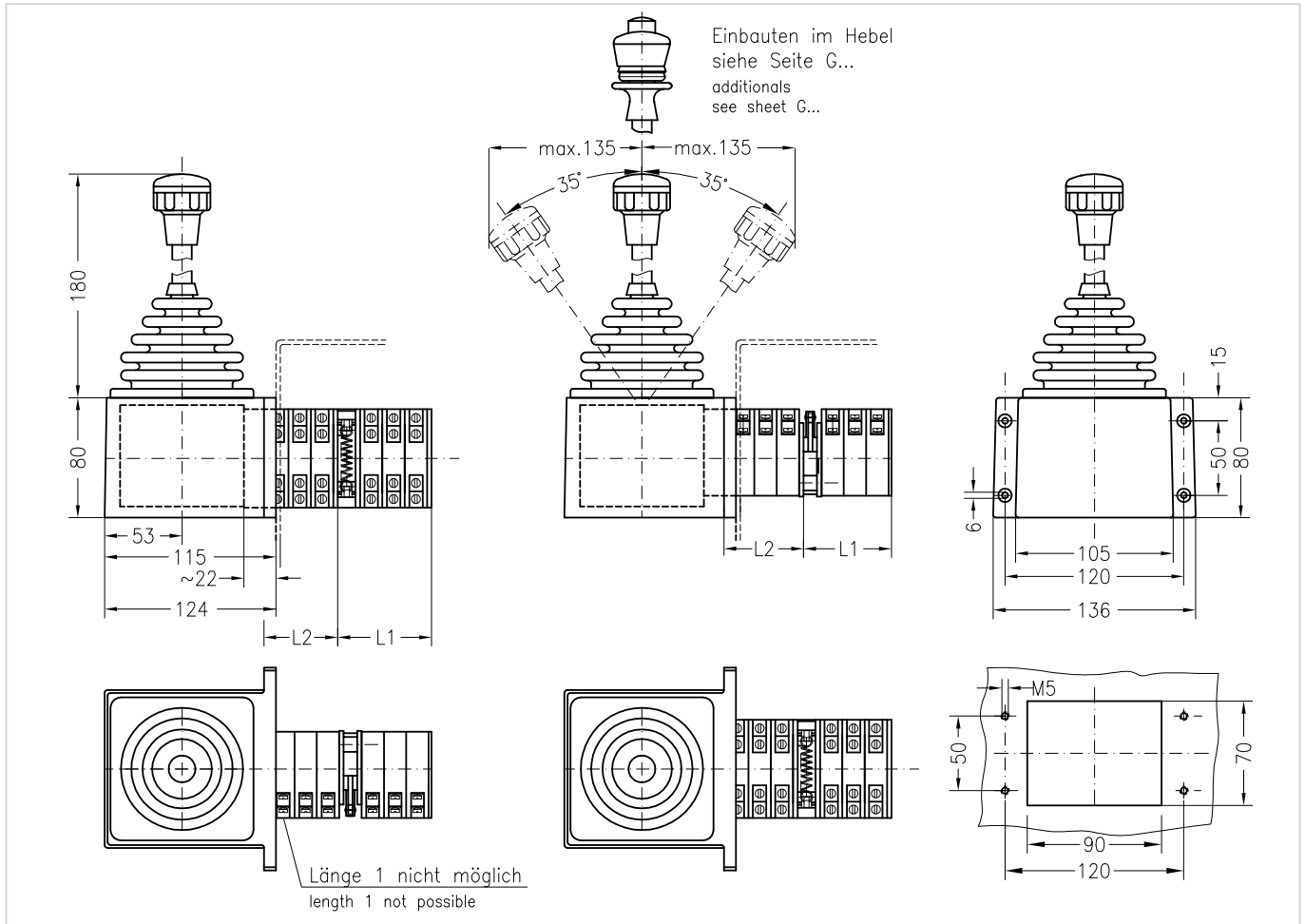
Fabrik Norm	Schalterlänge bei Anzahl Doppelkontaktelemente																		number of double contact elements	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VNS0K$\frac{N}{U}$E(R) VNS0-KE(R) VNS0K-H(R)	35	50	65	80	95	110	125	140	155	170	185	200	215	230	245	260	275	290	310	325
Gewicht weight ~kg																				

Kontaktanschlüsse seitlich — contacts on side

Antriebsart drive arrangement E
Fabrik Norm VNS0-NKE(R) VNS0-UKE(R)
Anzahl Doppelkontaktelemente
number of double contact elements

Linker Block Rechter Block
left block right block

G
VNS0-NKG(R) VNS0-UKG(R)

H
VNS0--NKH(R) VNS0--UKH(R)

Kontaktanschlüsse oben — contacts on top

Antriebsart drive arrangem. E
Fabrik Norm VNS0-KE(R)

G
VNS0-KG(R)

H
VNS0--KH(R)

Typ type   VNS0–QF–E

Pulverbeschichtet in RAL 7032 kieselgrau
powder coated RAL 7032 pebble grey

max.36°

110
145
180

105

Typ type	Maß A dimension A	Gewicht weight		Anordnung arrangement		Schaltrichtung switching direction	
				linke Hand left hand	rechte Hand right hand	linke Hand left hand	rechte Hand right hand
VNS03QF–E	180			N	U	1 L 2	5 R 6
VNS06QF–E	230	3–6 kg					
VNS09QF–E	280						

Typ type   VNS0–QF–V

max.36°

110
145
180

105

Typ type	Maß A dimension A	Gewicht weight		Anordnung arrangement				Schaltrichtung switching direction	
				linke Hand left hand	rechte Hand right hand	linke Hand left hand	rechte Hand right hand	linke Hand left hand	rechte Hand right hand
VNS03QF–V	180			N	U	Y	X	1 3 L 4 2	5 7 R 8 6
VNS06QF–V	230	4–8 kg							
VNS09QF–V	280								

Typ VNS0–LF–G
type

VNS0–LF––GG
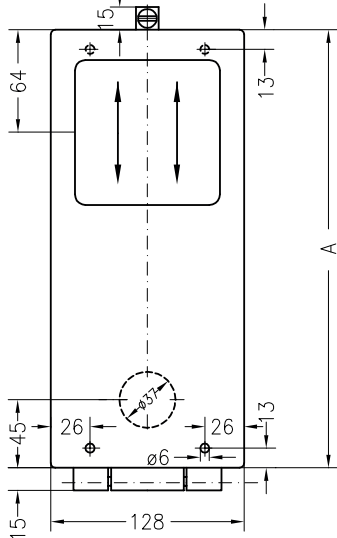
Lackierung RAL 7032 kieselgrau
color RAL 7032 pebble grey

15
64
13

A

26   26
45
ø37
13
ø6
15   128

max.42°
max. 135

105   145   **180**

Typ type		MAß A dimension A	Gewicht weight	Schaltrichtungsbezeichnung			
				linke Hand left	rechte Hand right	linke Hand left	rechte Hand right
VNS04 LF–G		195		1 ↕ L 2	5 ↕ R 6	1 ↕ 2 3 ↕ 4	5 ↕ 6 7 ↕ 8
VNS06 LF–G	VNS06 LF––GG	290	3–6 kg				
VNS09 LF–G	VNS09 LF––GG	350		circuit direction and engraving code			

Typ VNS0–LF––H
type

15
64
13

A

26   26
45
ø37
13
ø6
15   128

max.42°
max. 135

105   145   **180**

Typ type		MAß A dimension A	Gewicht weight	Schaltrichtungsbezeichnung	
				linke Hand left	rechte Hand right
VNS04 LF––H		195		1 ↕ 3 ↔ L ↔ 4 ↕ 2	5 ↕ 7 ↔ R ↔ 8 ↕ 6
VNS06 LF––H		290	3–6 kg		
VNS09 LF––H		350		circuit direction and engraving code	

Typ VNS0--D
type
Siehe Seite J-NS0-4/5
see sheet J-NS0-4/5
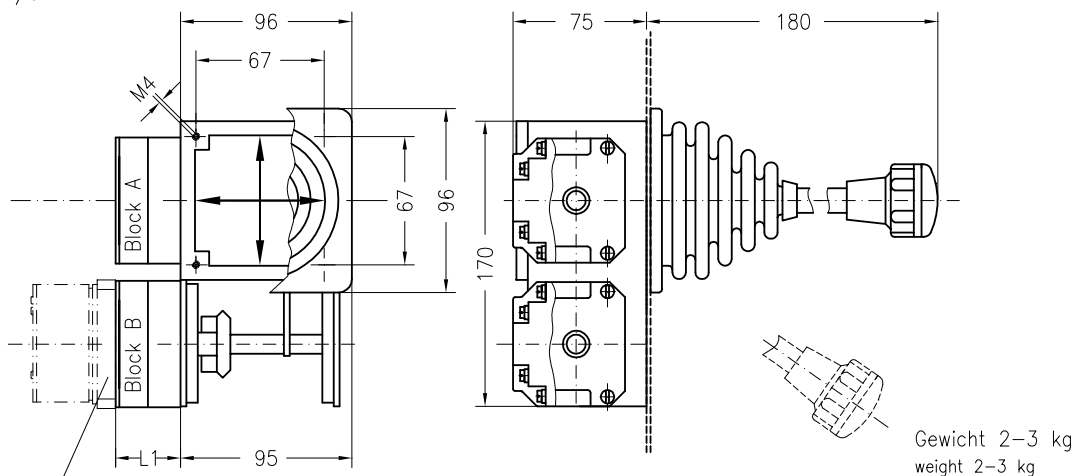
Block A

Block B

M4

96
67
67
96
170

L1
95

75
180

Gewicht 2-3 kg
weight 2-3 kg

Kupplung für Geber
attachment for transmitters

number of double contact elements	L1	
Anzahl Doppelkontaktelemente	bis /till 4-0-4	ab/from 5-0-5
1	15	30
2	30	45
3	45	60
4	60	75
5	75	90
6	90	105

Bohrungen in der
Befestigungswand
mounting dimensions

Ø80
67
67
4,5

NS0--ND (R)	NS0--UD (R)
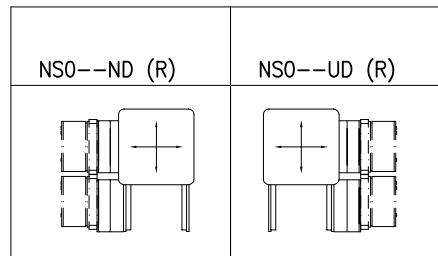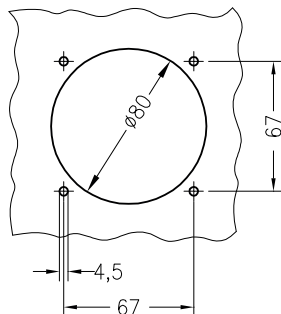
Drehrichtung des Schalters bzw. des Gebers
bei Hebelbetätigung in Richtung....
rotation direction of controller or encoder
lever movement in direction...

2
1
2
1

1
2

3
4
4
3

3
4

6
5
dreht nicht
not rotating

5
6

5
dreht nicht
not rotating
8

7
8

7
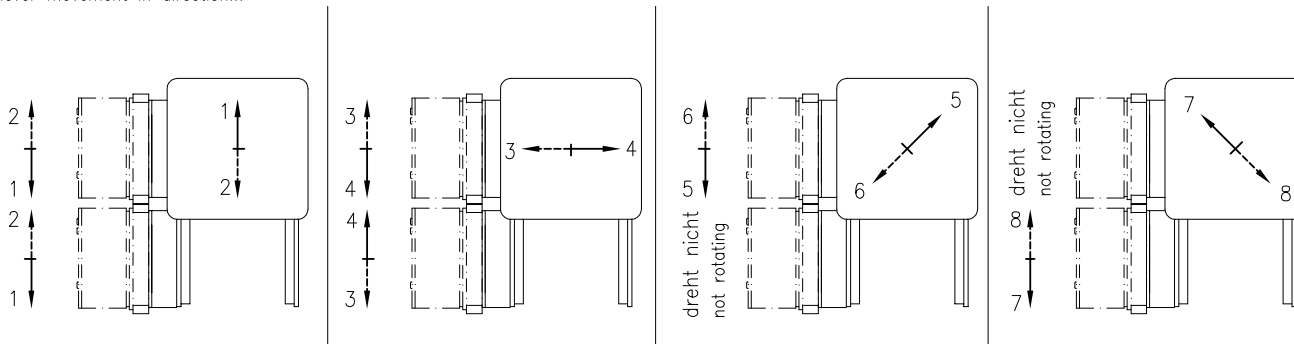
Typ **VNS0--GGEA**
type

Antrieb GGEA
siehe Seite J-NS0-4/5
drive GGEA
see sheet J-NS0-4/5

Einbauten im Hebel
siehe Seite G...
additionals
see sheet G...

max.5
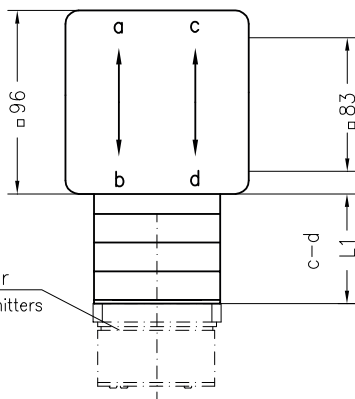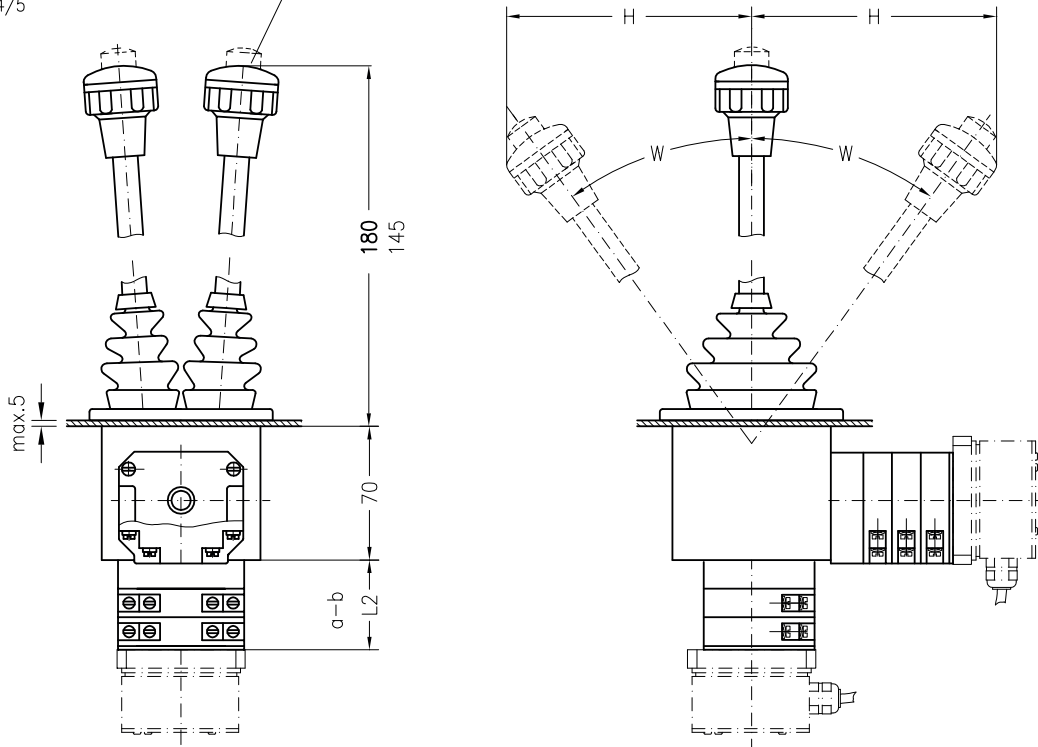
Kupplung für Geber
attachment for transmitters
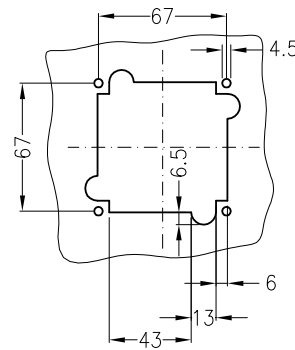
Bohrungen in der
Befestigungswand
mounting dimensions

Gewicht:
Antriebsblock ~1,6 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,6 kg
each double contact ~0,08 kg

bei 180 mm Hebel by lever 180 mm		
Position	W	H ~ mm
1-0-1	17°	70
2-0-2	35°	115
3-0-3	30°	105
4-0-4	38°	125
5-0-5	35°	115
6-0-6	42°	135
7-0-7	42°	135

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

Typ **VNS0--FGGH**
type

Antrieb GG
siehe Seite J—NS0—4/5
drive GG
see sheet J—NS0—4/5

Einbauten im Hebel
siehe Seite G—...
additionals
see sheet G—...
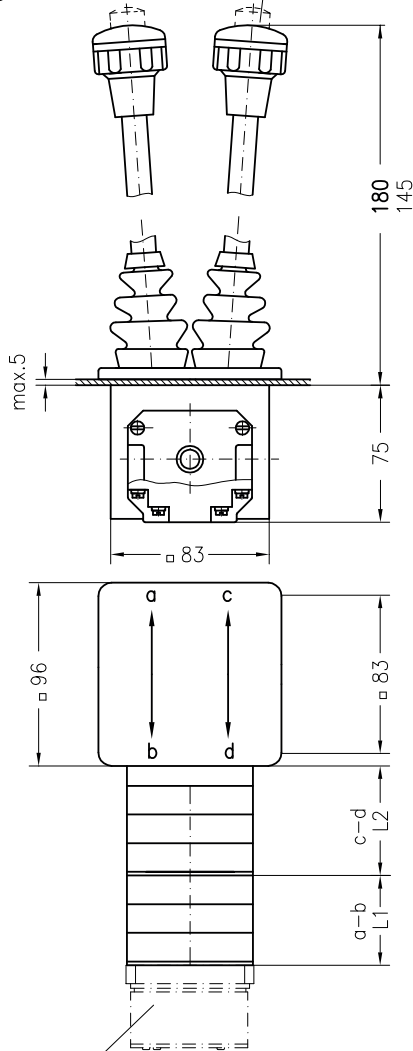
max.5

180
145

75

□ 83

□ 96

□ 83

a

c

b

d

c—d L2

a—b L1

Geber nur für
einen Hebel möglich
attachment for transmitter
only for one handle

Gewicht:
Antriebsblock ~1,6 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,6 kg
each double contact ~0,08 kg
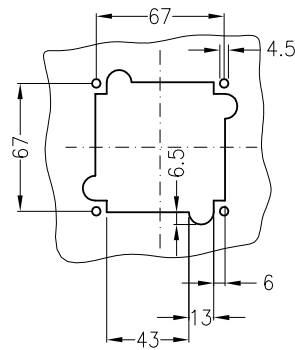
Typ **VNS0--GGAA**
type

Antrieb GGA
siehe Seite J—NS0—4/5
drive GGA
see sheet J—NS0—4/5
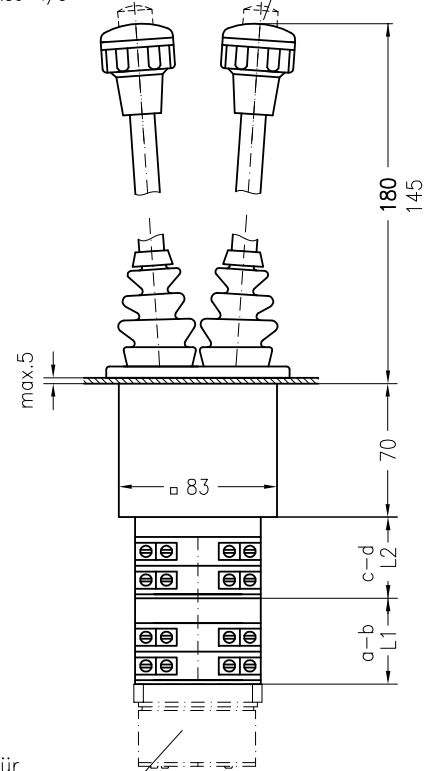
Einbauten im Hebel
siehe Seite G—...
additionals
see sheet G—...

max.5

180
145

70

□ 83

c—d L2

a—b L1

Geber nur für
einen Hebel möglich
attachment for transmitter
only for one handle

□ 96

a

c

b

d

67

4.5

67

6.5

6

13

43
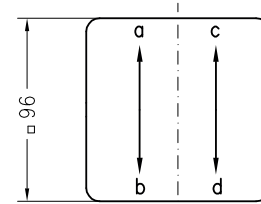
Bohrungen in der
Befestigungswand
mounting dimensions

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

Typ **NNS0−F−E**   Antrieb E   siehe Seite J−NS0−3/5
type   drive E   see sheet J−NS0−3/5

Einbauten im Hebel
siehe Seite G−4/4
additionals
see sheet G−4/4

180
145
110

□96

M4

□67

L1   □83

Kontaktanschlüsse
connections

75

W   H

Kupplung für Geber
attachment for transmitter

Anordnung
arrangement

N   U

Gewicht:
Antriebsblock ~1,1 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,1 kg
each double contact ~0,08 kg

Bohrungen in der
Befestigungswand
mounting dimensions

Ø80

67

4,5

67

Typ **NNS0−F−V**   Antrieb V   siehe Seite J−NS0−3/5
type   drive V   see sheet J−NS0−3/5

Blickrichtung
view direction

□83

□67

M4

L1

□96

L2

Querrichtung
cross direction

Kontaktanschlüsse
connections

180
145
110

30°

Einbauten im Hebel
siehe Seite G−4/4
additionals
see sheet G−4/4

Kupplung für Geber
attachment for transmitter

Anordnung
arrangement

N   U   Y   X

Gewicht:
Antriebsblock ~1,1 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,1 kg
each double contact ~0,08 kg

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

Typ **NNS0-FG**   Antrieb G   siehe Seite J-NS0-P
type   drive G   see sheet J-NS0-P

□67
M4
83
□96
L1

Kupplung für Geber
attachment for transmitters

75   180
      140
      110

W   H

Einbauten im Hebel
siehe Seite G-4/4
additionals
see sheet G-4/4
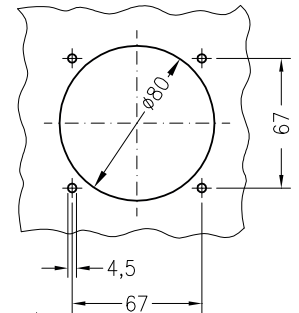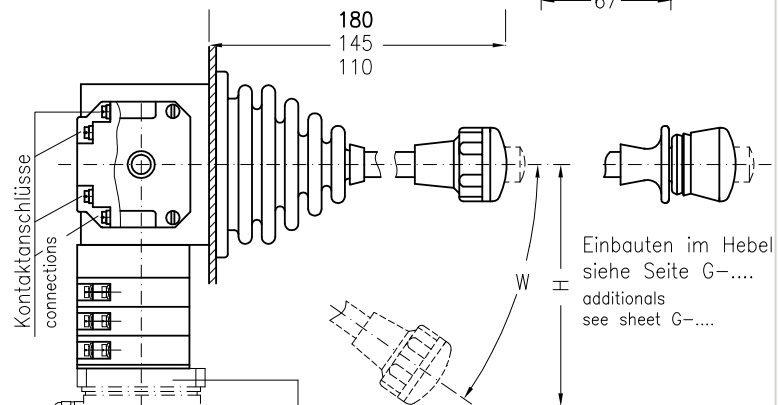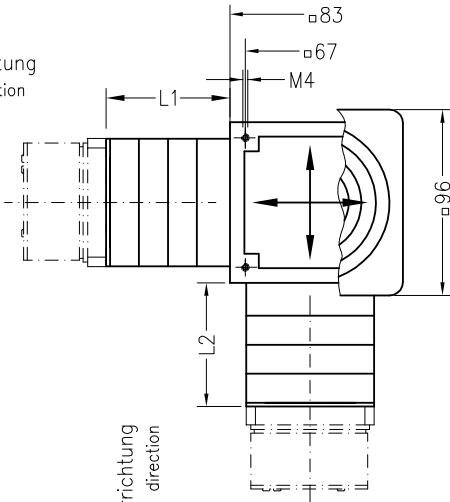
Gewicht:
Antriebsblock ~1,4 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,4 kg
each double contact ~0,08 kg

Bohrungen in der
Befestigungswand
mounting dimensions

Ø80   67
4,5
67

Typ **NNS0-FM**   Antrieb M   siehe Seite J-NS0-P
type   drive M   see sheet J-NS0-P

Gewicht:
Antriebsblock ~1,4 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,4 kg
each double contact ~0,08 kg

67
Querrichtung
cross direction
L2
□83
L1
Blickrichtung
view direction

Kupplung für Geber
attachment for transmitters

max.30°

Einbauten im Hebel
siehe Seite G-4/4
additionals
see sheet G-4/4

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Joystick NNS0-A, NNS0-EA, NNS0-AA
front mounting, heavy version

TI-NNS0-3/3   **TI**-NNS0-3/3

Typ **NNS0−A**
type
Antrieb A   siehe Seite J−NS0−P
drive A   see sheet J−NS0−P

L1   70   180
                145
                110

evtl. Klemmleiste für
HU Kontakt
terminal if necessary

Einbauten im Hebel
siehe Seite G−4/4
additionals
see sheet G−4/4

□96

M4
□67   Kupplung für Geber
□83   attachment for transmitters

W   H

Bohrungen in der
Befestigungswand
mounting dimensions

Gewicht:
Antriebsblock ~1,4 kg
je Doppelkontakt ~0,08 kg
weight:
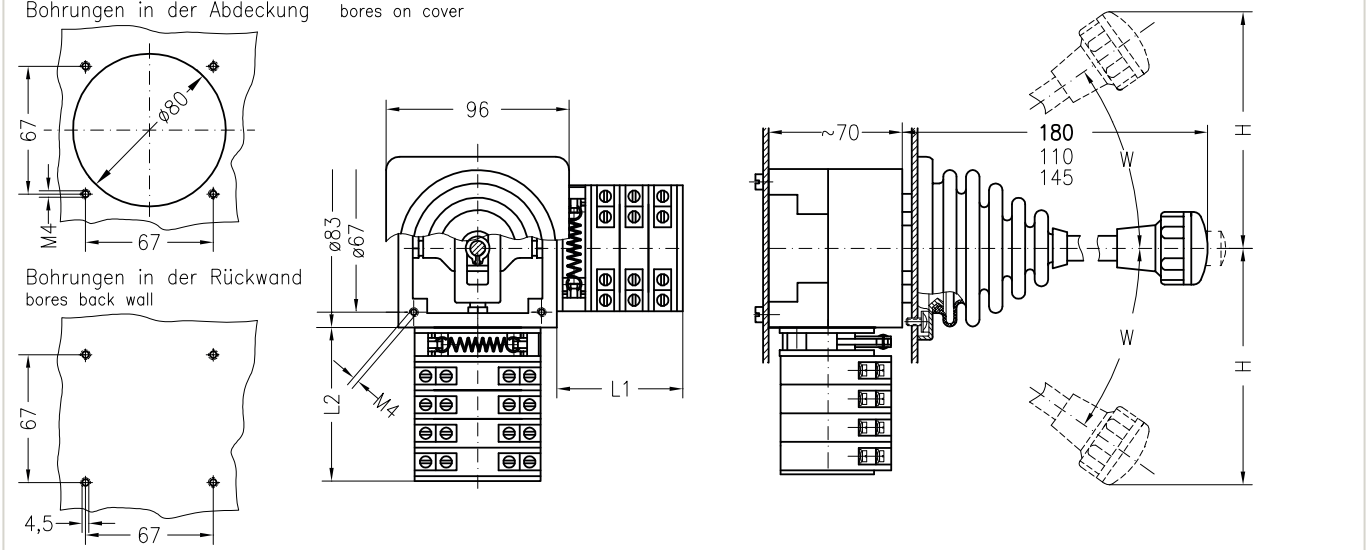drive ~1,4 kg
each double contact ~0,08 kg
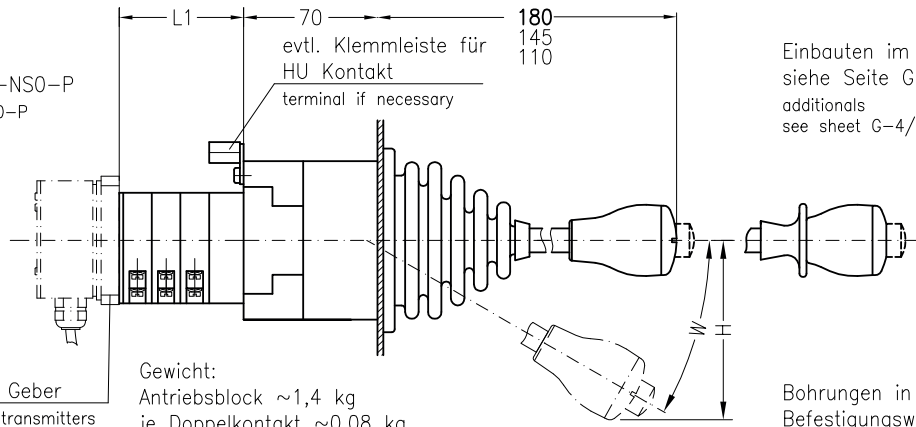
Typ **NNS0−−EA**
type
Antrieb EA   siehe Seite J−NS0−P
drive EA   see sheet J−NS0−P

□83
□67

L1   70   180
                145
                110

Blickrichtung   evtl. Klemmleiste für
view direction   HU Kontakt
                   terminal if necessary

46.5

□96

Querrichtung
cross direction

L2

ø80

67

4,5
67

max. 30°

Gewicht:
Antriebsblock ~1,4 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,4 kg
each double contact ~0,08 kg

Typ **NNS0−−AA**
type
Antrieb AA   siehe Seite J−NS0−P
drive AA   see sheet J−NS0−P

evtl. Klemmleiste für
HU Kontakt
terminal if necessary

L1   L2   70   180
        Quer   145
        cross   110

Blickrichtung
view direction

max. 30°

Geber nur in
Blickrichtung möglich
attachment only
for view direction

Gewicht:
Antriebsblock ~1,65 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,65 kg
each double contact ~0,08 kg

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

Typ   NS0--SFA R
type
   siehe Seite J—NS0—SFA
   see sheet J—NS0—SFA

Anordnung – nur erforderlich bei unsymmetrischer Abwicklung
arrangement – important if the circuit isn't symmetrical

N   U   X   Y

Andere Griffe siehe Seite G—...
other handels see sheets G—...
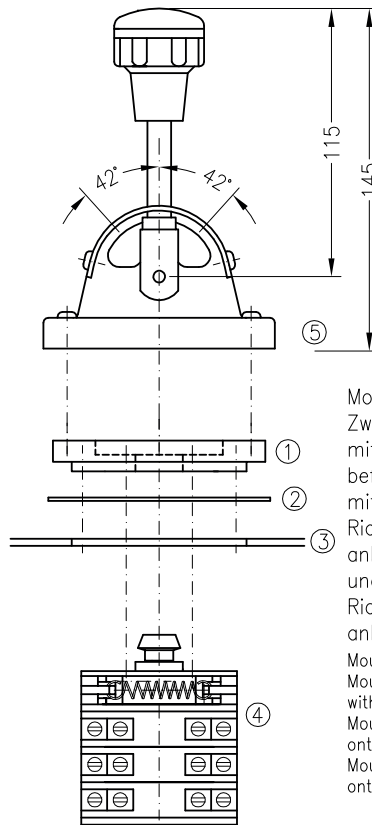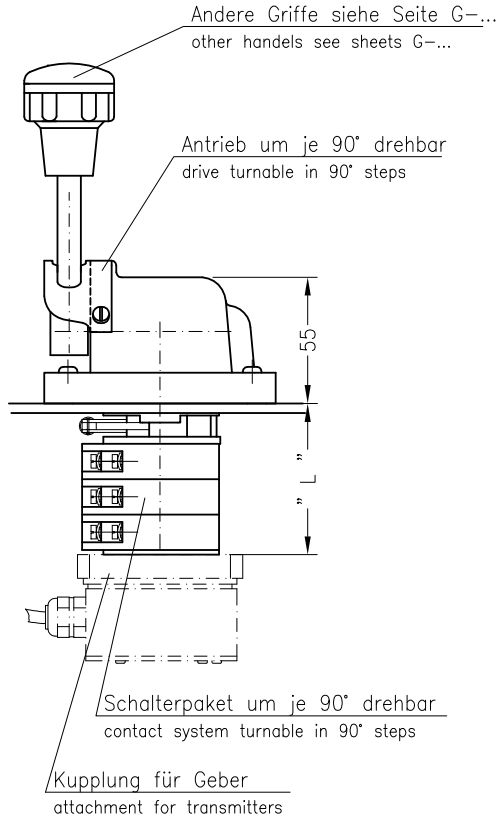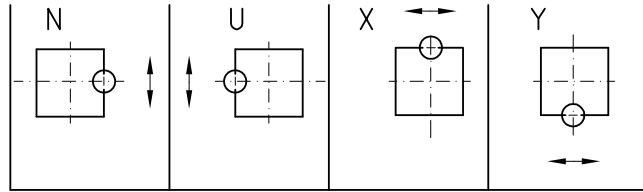
Schutzart IP56 frontseitig
degree of protection IP56

Antrieb um je 90° drehbar
drive turnable in 90° steps

42°   42°

115

145

55

" L "

①

②

③

⑤

Schalterpaket um je 90° drehbar
contact system turnable in 90° steps

Kupplung für Geber
attachment for transmitters

④

Montage:
Zwischenplatte ① und Dichtung ②
mit 4 Schrauben M5 am Gehäuse ③
befestigen , Schalterpaket ④
mit 4 Schrauben in der gewünschten
Richtung an der Zwischenplatte ①
anbauen. Antrieb ⑤ mit 4 Schrauben
und Dichtungen in gewünschter
Richtung an Zwischenplatte ①
anbauen.

Mounting:
Mount atachement plate ① and sealing ②
with 4 screws M5 at the housing ③.
Mount the contact system ④ with 4 screws
onto the attachement plate ①.
Mount the drive ⑤ with 4 screws
onto the attachement plate ①.

98

98

M5

ø76

65

65
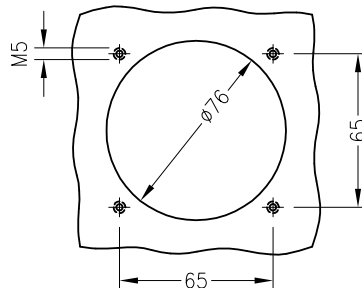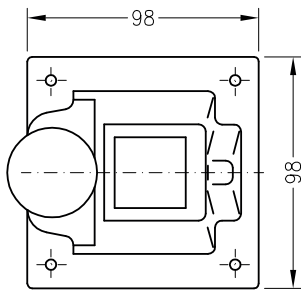
Gewicht:
Antriebsblock ~1,2 kg
je Doppelkontakt ~0,1 kg
weight:
drive ~1,2 kg
each double contact ~0,1 kg

Anzahl Doppelkontaktelemente numbers of double contact blocks	1	2	3	4	5	6	7	8	9	10
Länge " L " length	40	55	70	85	100	115	130	145	160	175

Einsatzschalter NS00
switch

Anzahl Doppelkontaktelemente number of double contact elements
evtl. Kupplung für Geber attachment for transmitters
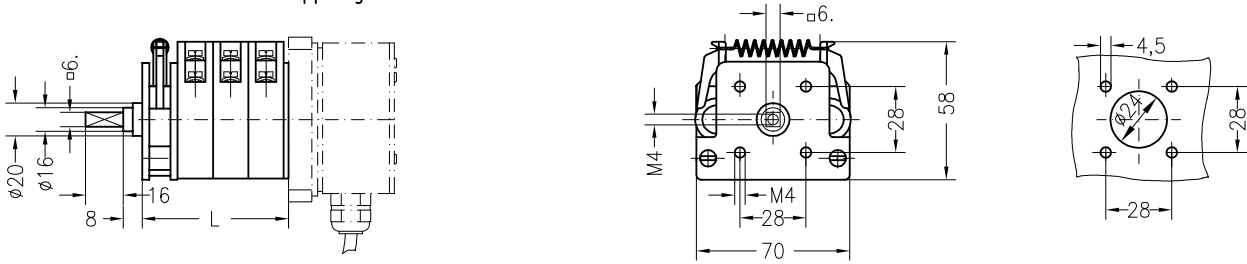
Einsatzschalter mit Rosette 72x72 mm NS00–F
switch with escutcheon 72x72 mm

Anzahl Doppelkontaktelemente number of double contact elements
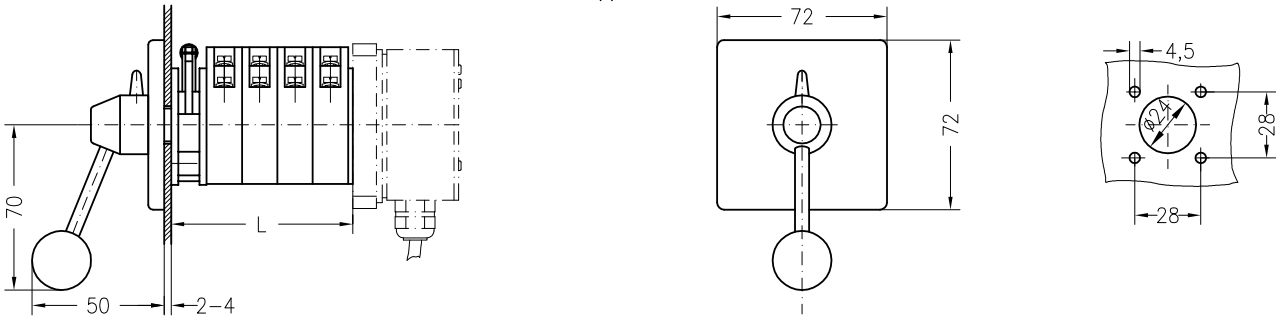
Einsatzschalter mit Rosette 96x96 mm NS00–FA
switch with escutcheon 96x96

Anzahl Doppelkontaktelemente number of double contact elements
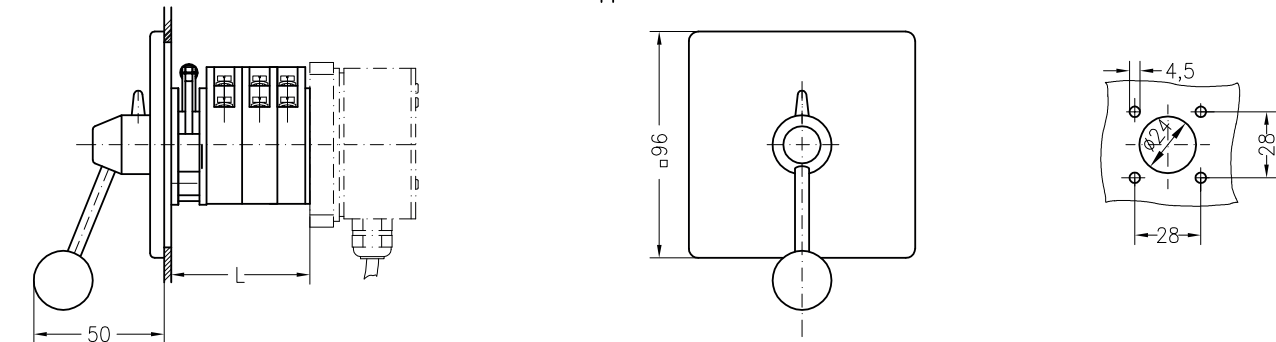
Einsatzschalter mit wasserdichter Rundrosette NS00–FOD
switch with escutcheon plate ⌀70 mm

Anzahl Doppelkontaktelemente number of double contact elements
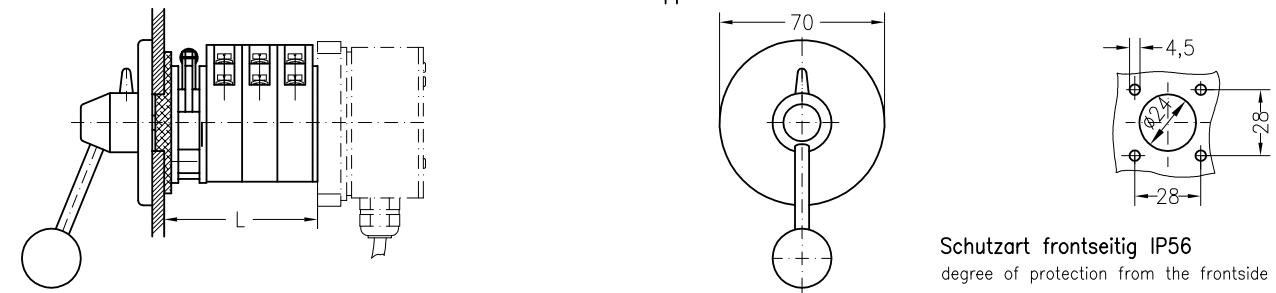
Schutzart frontseitig IP56
degree of protection from the frontside IP56

Anzahl Doppelkontaktelemente number of double contact elements

		NS001_	NS002_	NS003_	NS004_	NS005_	NS006_	NS007_	NS008_	NS009_	NS0010_
mit Rastung	with notches	NS001_	NS002_	NS003_	NS004_	NS005_	NS006_	NS007_	NS008_	NS009_	NS0010_
mit Rückzug	with spring return	NS001_R		NS002_R	NS003_R	NS004_R	NS005_R	NS006_R	NS007_R	NS008_R	NS009_R
Länge	length L mm	35	50	65	80	95	110	125	140	155	170
Gewicht	weight ~ g	590	680	770	860	950	1040	1130	1220	1310	1400

mit zusätzlicher Reibbremse für Potentiometerbetrieb, Länge L + 15 mm.
mit Doppelrastung L + 15 mm.
with additional friction disc for potentiometer, length L + 15 mm
with double notches, length L + 15 mm

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-NS00-2/2   Joystick NS00 cost enclosure   **TI**-NS00-2/2

Errors and technical
changes reserved.
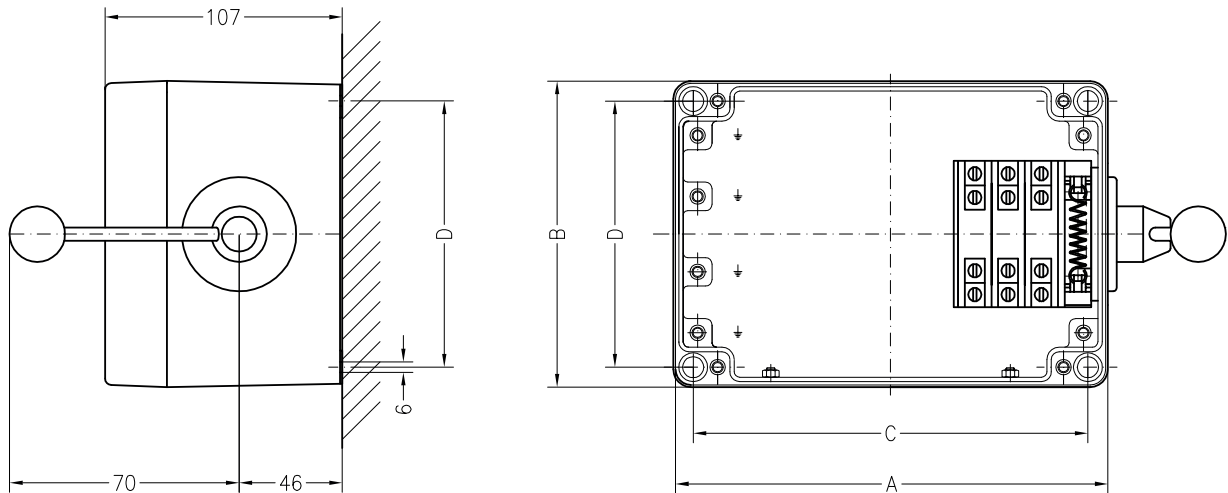
Schutzart IP54
mit Kugelgriff
auf Wunsch: Knebelgriff
degree of protection IP54
with handle according
on request: knob

ohne Selbstrückgang without spring return		mit Selbstrückgang with spring return						
Typ Type	Anzahl Doppel‑kontaktelemente number of double contact elements	Typ Type	Anzahl Doppel‑kontaktelemente number of double contact elements	A	B	C	D	Gewicht ~kg weight ~kg
NS 006 GA	1	NS 006 GAR	1					1,1
NS 006 GA	2	NS 006 GAR	2					1,2
NS 006 GA	3	NS 006 GAR	3					1,3
NS 006 GA	4	NS 006 GAR	4	138	135	120	117	1,4
NS 006 GA	5	NS 006 GAR	5					1,5
NS 006 GA	6							1,6
NS 0010 GA	7	NS 0010 GAR	6	196	138	178	120	1,8
NS 0010 GA	8	NS 0010 GAR	7					1,9

Typ **CS1S...**
mit Stulpenhaltering
weitere Griffe siehe G...
type with rubber boot holder
other handles see G...

Typ **CS172...**
mit Rosette 72x72 (nicht beschriftbar)
weitere Griffe siehe G...
type with escutcheon plate 72x72 (no engraving possible)
other handles see G...

max.26°   max.26°

V041K

standard 110
140

7.5   □54   10

max.26°   max.26°

V040KE

standard 110
140

Mikroschalter mit
Flachsteckanschlüße
2,8x0,5
micro switches with
flat push-on connection

Potentiometer
potentiometer

7.5   □54   10

□50
□60

□72

Bohrungen in der
Befestigungswand
mounting dimensions

Ø4.4   50

Ø52   50

Ø4.4   50

Ø52   50
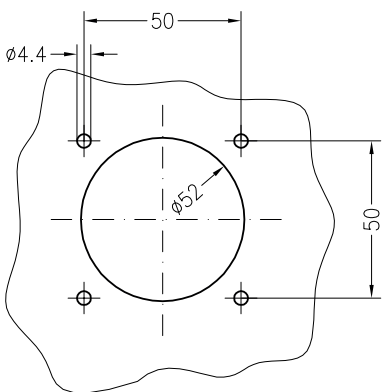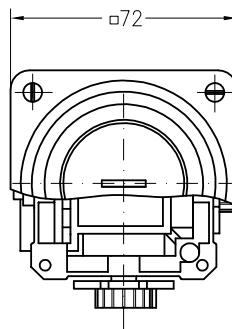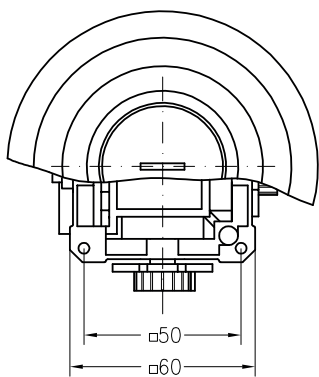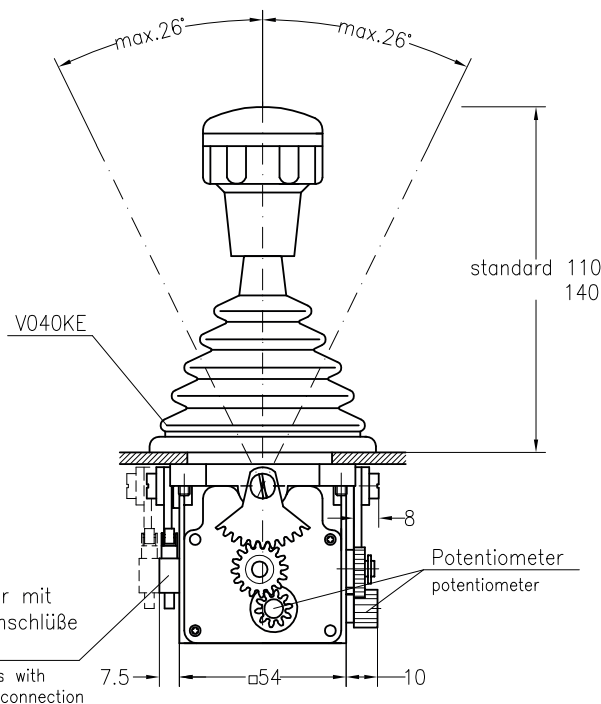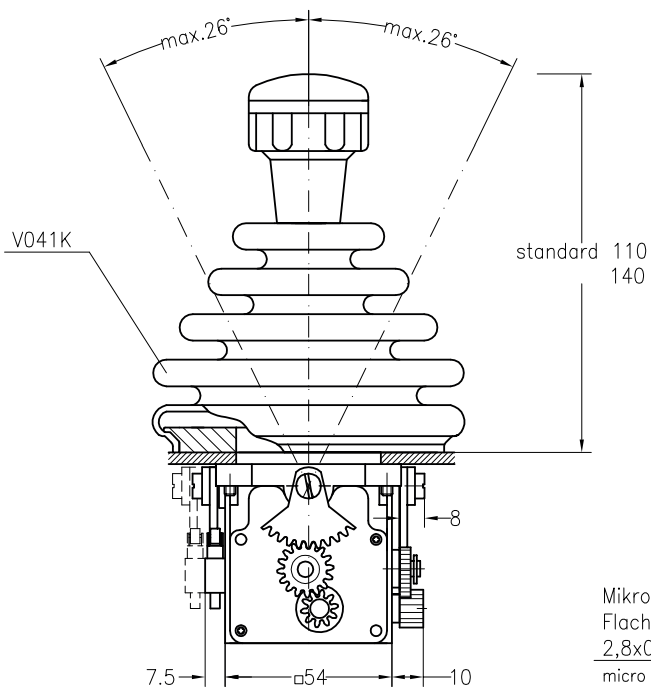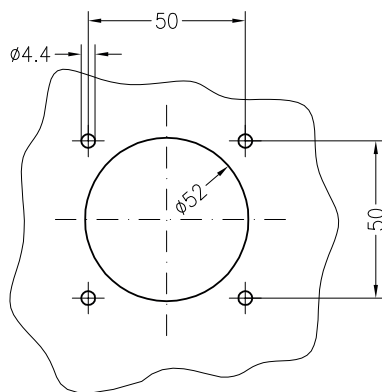
Typ **CS1G...**
gekapselt IP54
für frontseitigen Einbau
type enclosed IP54
mounting in front side
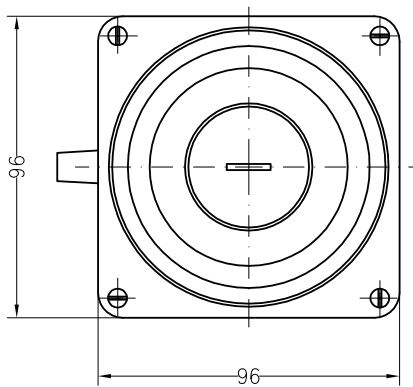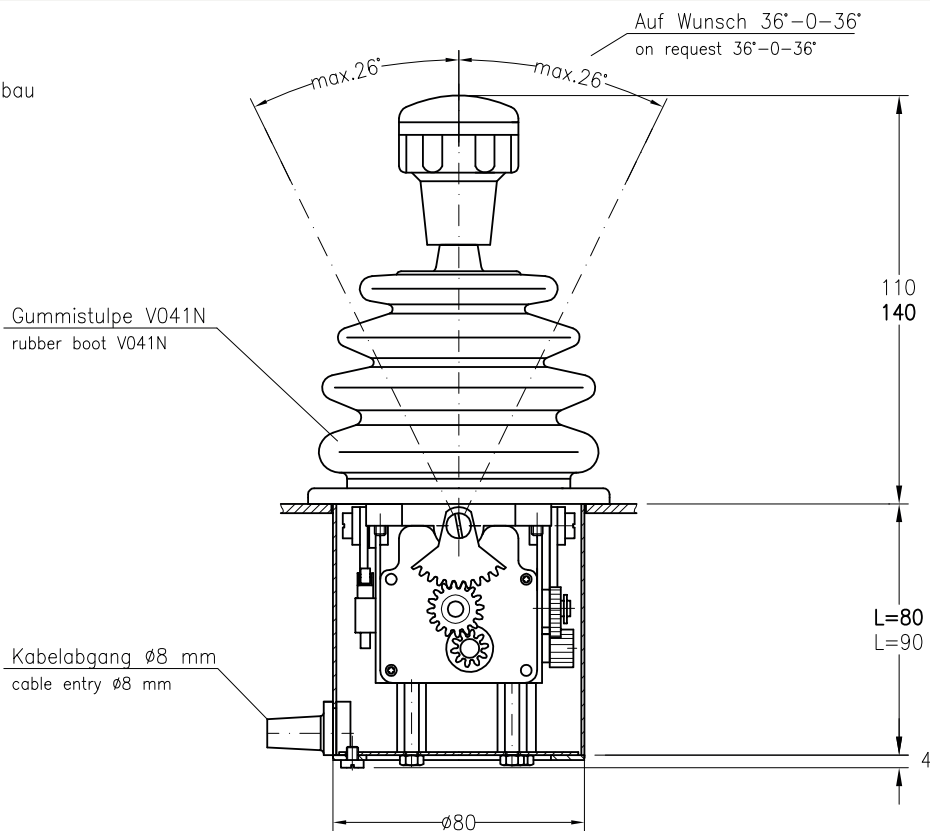
Auf Wunsch 36°–0–36°
on request 36°–0–36°

max.26°   max.26°

Gummistulpe V041N
rubber boot V041N

110
140

L=80
L=90

Kabelabgang ⌀8 mm
cable entry ⌀8 mm

4

⌀80

96

96

Einbauöffnung:
mounting dimensions

M4

⌀83

83,5

83,5

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-NS3

Joystick NS3

TI-NS3

26°   26°

200
(110 mm Hebel)
(lever 110 mm)

100

100

61

50

Potentiometer
potentiometer

Mikroschalter
microswitch

a
Y
c
e
X
d
b

Einbauöffnung
mounting dimensions

76,5

ø92

6,5

76,5
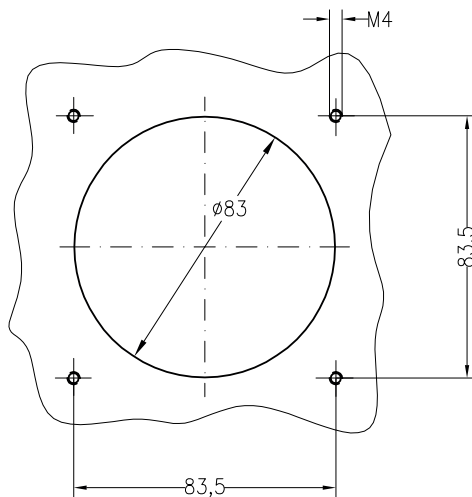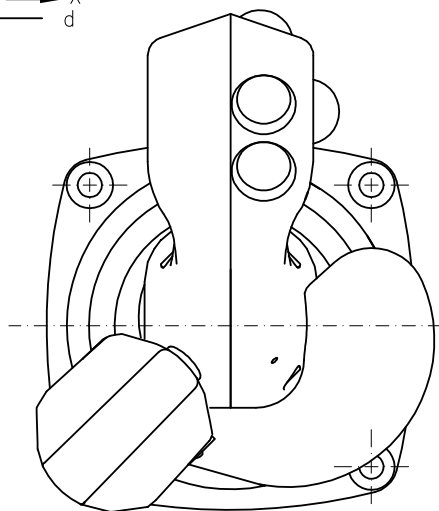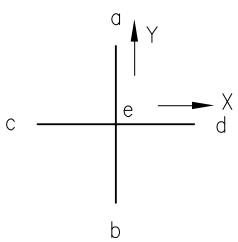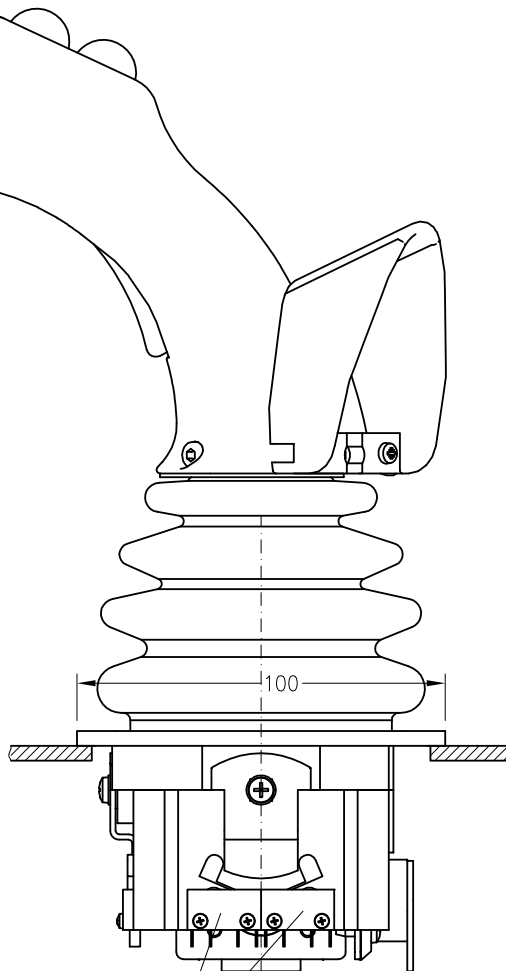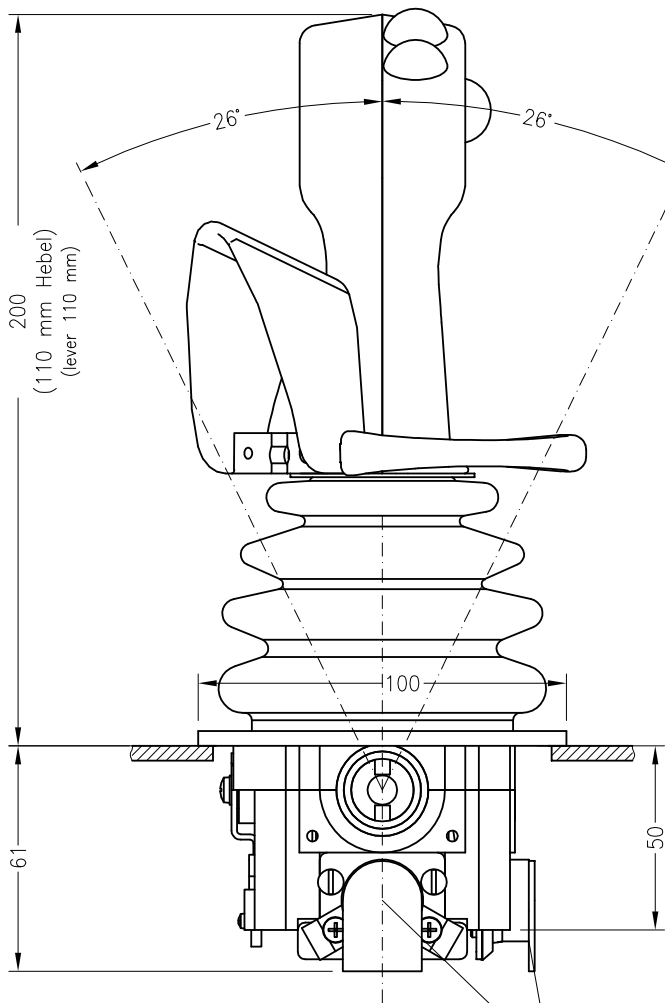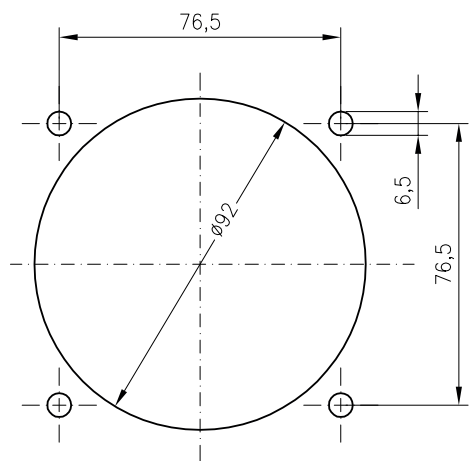
Installation dimensions

Mounting	from top
Mounting opening	40 mm diameter, additionally 4 mounting holes 4,3 mm
Flange dimension	45 x 45 mm
Installation depth, version: A1, A2	drive block 26 mm + cable exit at the bottom (space requirements for cable)

Mechanical data

Drive block material	Metal
Lever deflection angle	20°
Repeat accuracy center position	± 1°
Mechanical lifetime	5 mio cycles
Operating force (lever 60 mm)	Spring 1: 2,4....4,2 N (handle small)
	Spring 2: 8,4....14,7 N
Temperature range	-30°C ... +70°C
Protection degree with standard handle (above frontplate)	IP65

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-HS0-2/3   Technical information HS0   **TI**-HS0-2/3

Errors and technical
changes reserved.

Electrical data

Sensor
Sensor type   full redundant contactless dual-die 3D-HALL
Resolution   8-Bit (@ 20° deflection angle)
Linearity   max. +- 3% rel. linearity
EMV immunity   DIN EN 61000-6-2:03.2006
EMV emission   DIN EN 61000-6-3:09.2011

Voltage output signal
	A1	A2
Supply voltage U_B	5 VDC ± 0,5	5 VDC ± 0,5
Current consumption	< 35 mA	< 35 mA
Load resistor	> 10 kΩ	> 10 kΩ
Output signal	0,5 ... 4,5 VDC ± 0,15 ratiometric, redundant, in line signals	0,5 ... 4,5 VDC ± 0,15 ratiometric, redundant, contrary signals
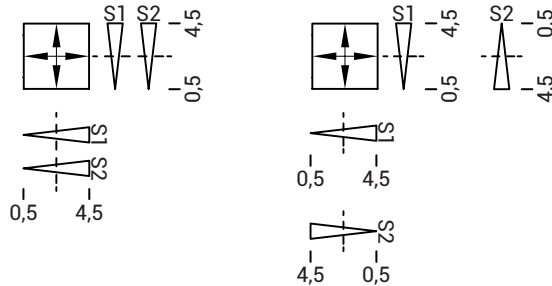
Center signal	2,5 VDC ± 0,15	2,5 VDC ± 0,15

Pin assignment (lead wire 150 mm with connector 12 pol. AMP Mate-N-Lock 770581-1 at the end):

Description	Pin	colour lead wire
Supply voltage 1	1	red
GND 1	2	brown
Signal S1, x-axis	3	blue
Signal S1, y-axis	7	violet
Supply voltage 2	5	orange
GND 2	6	black
Signal S1, x-axis	4	green
Signal S1, y-axis	8	yellow

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Elektrotechnische Fabrik Blaubeuren

Dimensions with standard
handle G57-12

36,16

20°   20°

Ø 29,00

98,25

72,00

26,25

Ø 38

Ø 40

□ 34,00

Ø 4,30

Type code:

			E	Y	A1	
	HS0	V	X	R	A2	G57-12

Type ———————————————
Drive ——————————————
Arrangement ——————————
Spring return ————————
Output signal ————————
Handle ——————————————
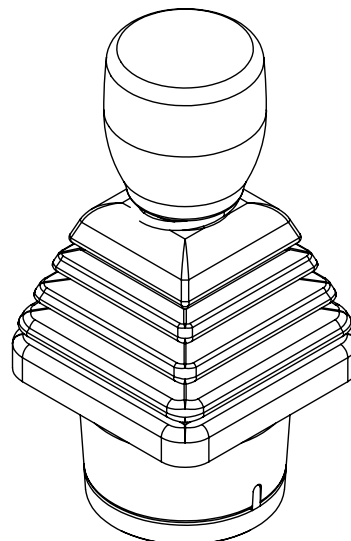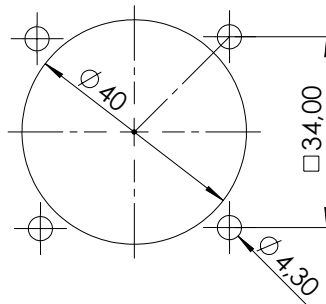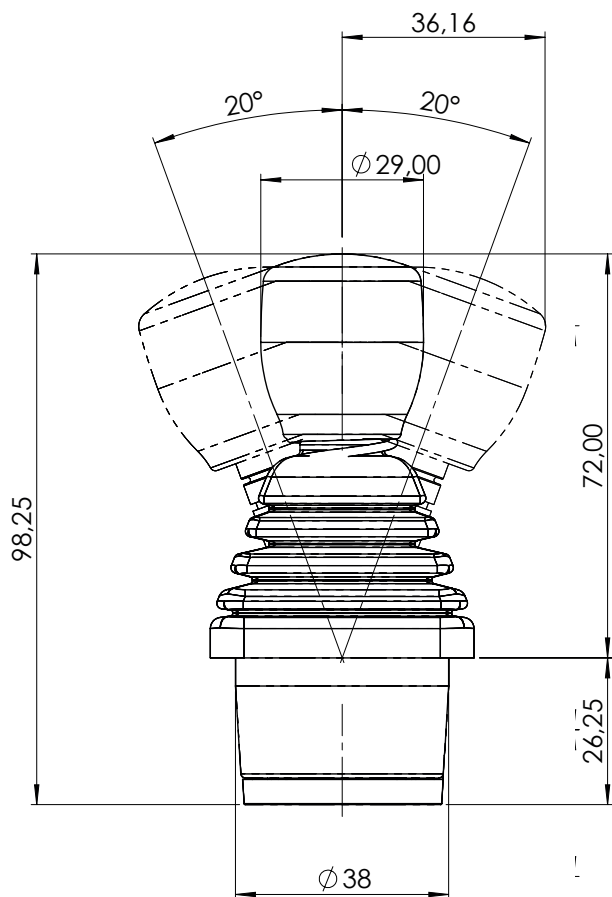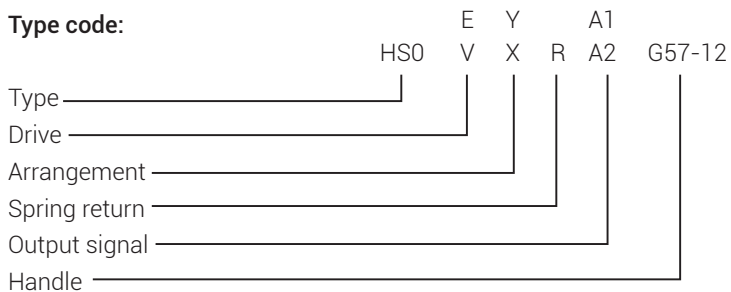
Installation dimensions

Version	HS2-T	HS2G-T	HS2-U	HS2G-U
Installation from	above	above	below	below
Installation opening	ø 92 mm	ø 92 mm	ø 44 mm	ø 44 mm
Flange dimensions	114 x 114	114 x 114	77 x 77	77 x 77

Installation depth at version:	Dimension L2 see sheet TI-HS2-3/4 + 4/4			
A1, A2	L2 = 50 mm	L2 = 65 mm	L2 = 70 mm	L2 = 80 mm
CANopen/SAEJ1939-71	-	L2 = 65 mm	-	L2 = 80 mm
ProfiBus-DP	-	L2 = 85 mm	-	L2 = 100 mm

Note: In version ProfiBus DP with hand detection sensor, the dimension L increases.
By version HS2with manual detection sensor ESS111 the dimension L is increasing.

Mechanical properties

Lever deflection	± 20° with limiting gate
Minimal window	± 1°
Impact force in X- and Y-direction	max. 75 Nm (max. 400 N at 37,5 mm distance from pivot point)
Impact force in Z-direction	± 300 N (compressive and tensile loading)
Life cycle	> 5 million operating cycles under the influence of climate (-40°C to +85°C)
Working temperature	-40°C bis +70°C
Storage temperature	-50°C bis +90°C
Protection from above with standard handle	IP65
Flame class UL94	HB

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Elektrotechnische Fabrik Blaubeuren

Electrical characteristics

Sensor
Sensor type   fully redundant Dual-Die 3D-Hall
Resolution   8-Bit (at 20° lever deflection)
Linearity   max. +3% rel. linearity
Interfering magnetic fields   EN61000-4-8 Level 5

	A1	A2
Analogue exit		
Operating voltage U_B	5 VDC ± 0,5	5 VDC ± 0,5
Current consumption	< 20 mA	< 20 mA
Load consumption	> 10 kΩ	> 10 kΩ
Operating temperature	-40°C to +70°C	-40°C to +70°C
Output signal	0,5 ... 4,5 V ratiom.	0,5 ... 4,5 V ratiom.
	redundant, same direction	redundant, inverse
	Example: V-drive	Example: V-drive
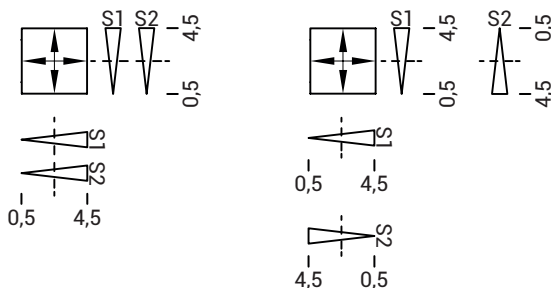
Middle position   2,5 V ± 0,1 V   2,5 V ± 0,1 V

Assignment

Description	Pin	colour lead wire
Supply voltage 1	1	red
GND 1	2	brown
Signal S1, x-axis	3	blue
Signal S1, y-axis	7	violet
Supply voltage 2	5	orange
GND 2	6	black
Signal S1, x-axis	4	green
Signal S1, y-axis	8	yellow

	CANopen	SAEJ1939-71	ProfiBus-DP
Bus-interfaces (only with HS2G)			
Operating voltage U_B with reverse	10 to 36 VDC	10 to 36 VDC	10 to 30 VDC
Current consumption	< 100 mA	< 100 mA	< 110 mA
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
Galvanic isolation (CAN-U_B)	yes	yes	
Input for:		2 axis joystick with full redundant	More technical
		Dual-Die 3D-HALL-Sensor	informationen see
		2 analogue inputs for potentiometer	TI-ProfiBus-1
		12 digital inputs	

Output			
Potential free zero contact	1x relay with changing contact		
Terminating resistor	may be activated on site		
Electronic	encapsulated	encapsulated	encapsulated
Connection type	0,4 m cable	0,4 m cable	D-Sub-plug in
	with D-Sub-plug	with D-Sub-plug	end plate

Optional   capacitive hand detection sensor

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Model: Installation from below,
analogue version

8

Ø 12

Ø 65

86

90

99

103

150,20

A   A

A-A

77

58

Ø 4,50

58

77

R45,80
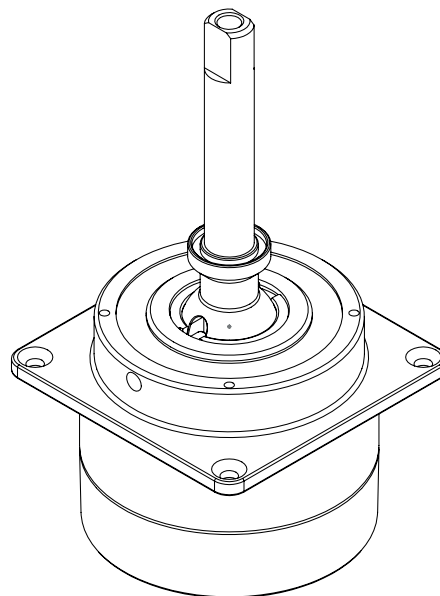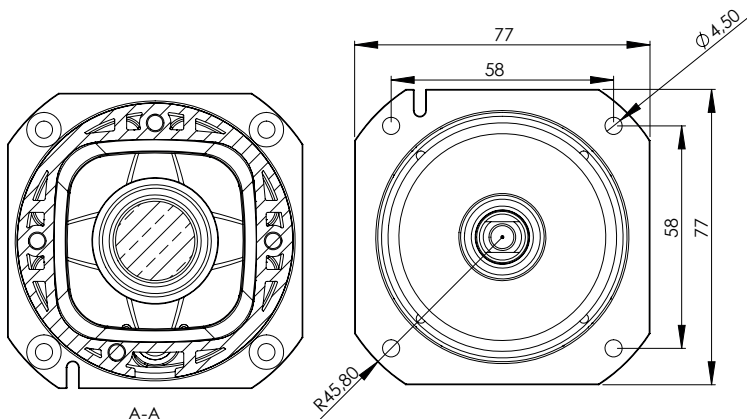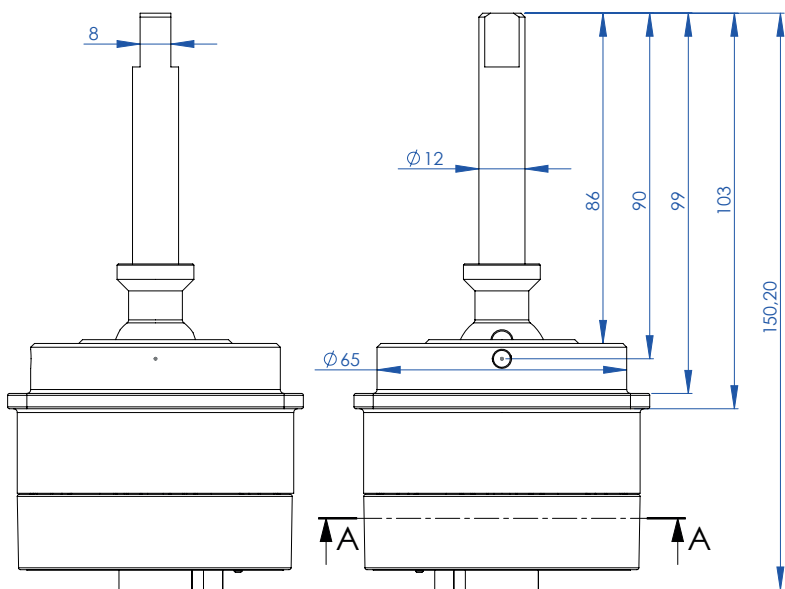
Drilling pattern for:
HS2 installation from below with or without holding ring.

Ø 3,40

45°

45°

Ø 44

Ø 60

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren
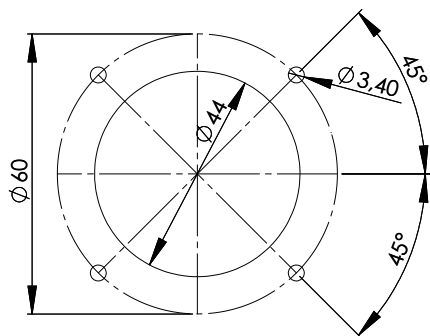
Model: Installation from above,
analogue version

M12X1

14

L1

42,40

L2

Ø

Ø 6,50

Ø 92

76,50
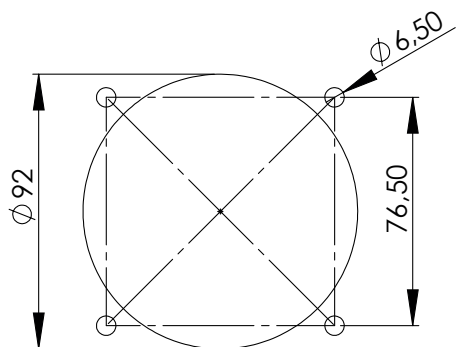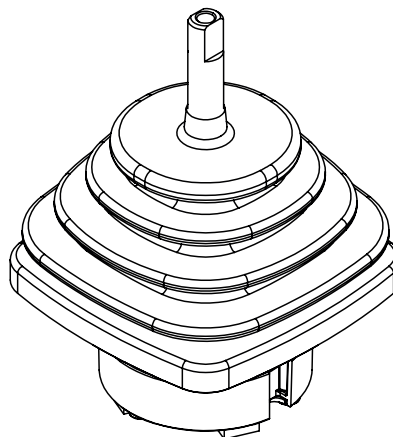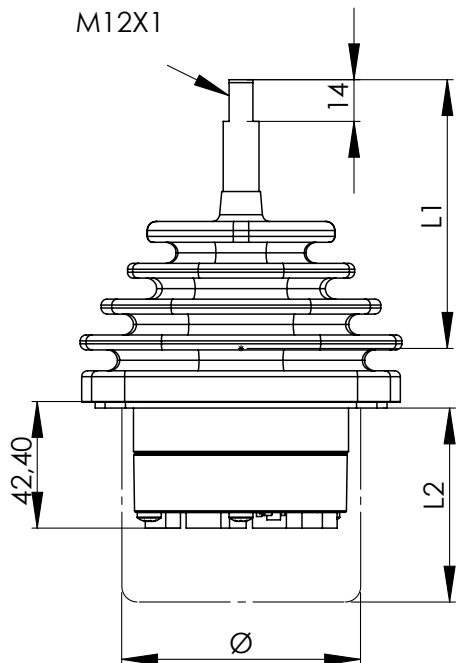
Drilling pattern HS2 / NS3

6,50

Ø 91

Ø 100

Ø 113
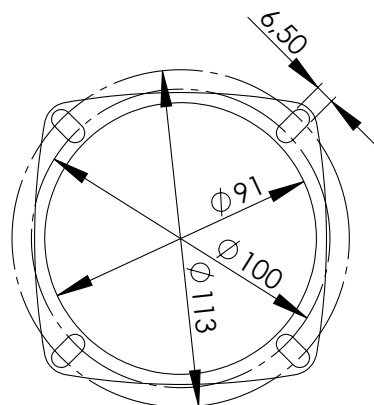
Drilling pattern 100 to 113 hole circle

90°

6,50

6,50

107,76

Ø 113

Ø 99,24
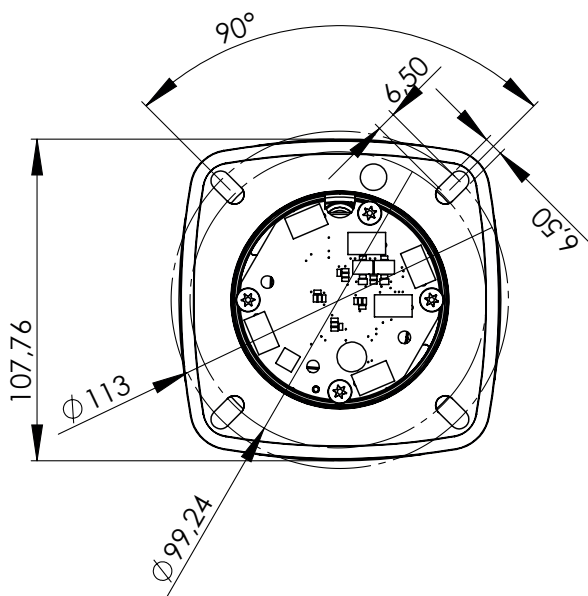
Installation dimensions, installations from below

Escutcheon	ø 84 mm
Mounting dimensions	ø 58 mm
Fastening bores	4 x 4,5 mm
Mounting depth	min. 64 mm
Height with handle	min. 70 mm
More installation dimensions see TI-JMS3-2/2	

Mechanical properties

Lever deflection	± 26° with limiting gate
Impact force in X- and Y-direction	max. 15 Nm (max. 500 N at 30 mm distance from pivot point)
Life cycle	> 4 Mio. switching cycles

Electrical characteristics

Sensor type	Conductive plastic potentiometer with direction contacts
Type	B5
	B10
	BLR5
	BLR55

General characteristics

Working temperature	-20°C bis +60°C
Storage temperature	-50°C bis +90°C
Degree of protection from outside with standard handle	IP54

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Version:

Front mounting with handle

80

64

13,50

89,50

15

26° 26°

⌀ 84

89,50

15

I-I

50

⌀ 4,50

⌀ 58

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren
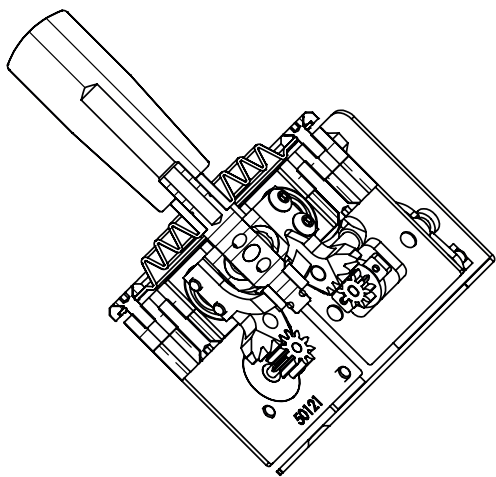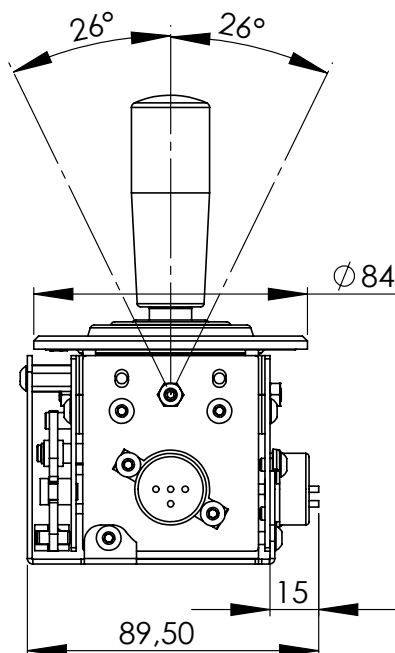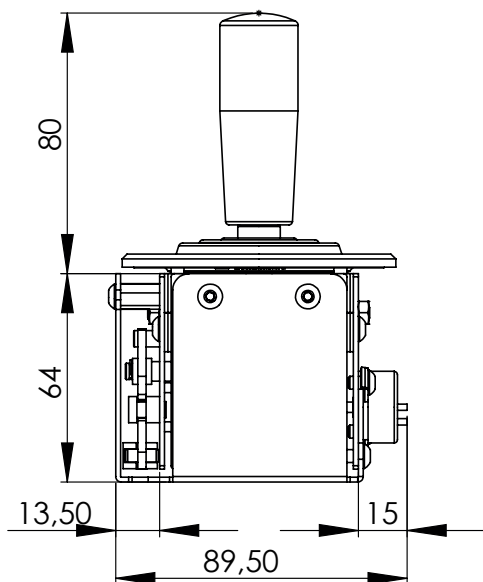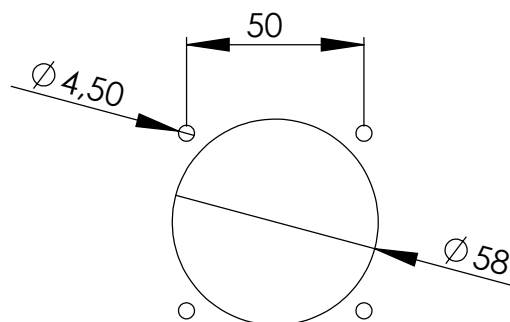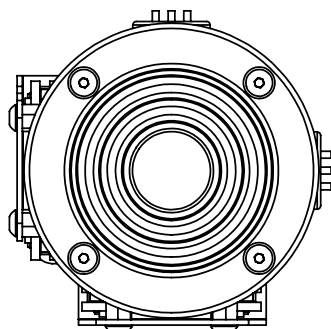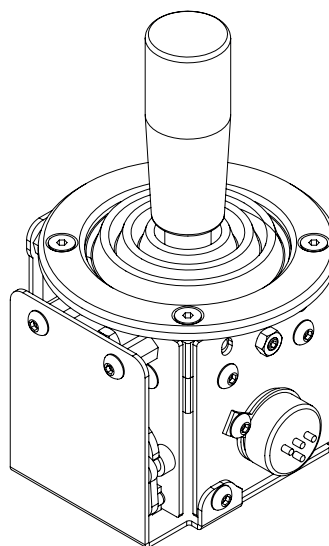
Typ **VNS2–F–E**   Antrieb E   siehe Seite J–VNS2–2/3
type   drive E   see sheet J–VNS2–2/3

□144

M5
□ 104
□ 121

L1

Kupplung für Geber
attachment for transmitters

max. ø120

285

Einbauten im Hebel
siehe Seite G–...
additionals
see sheet G–...

Kontaktanschlüsse
terminals

115

W
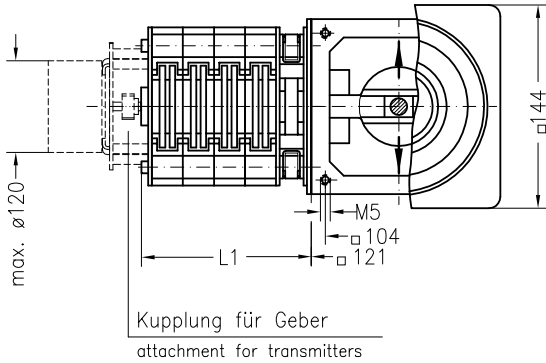
Anordnung
arrangement
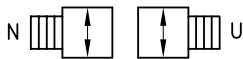
Gewicht:
Antriebsblock ~2,8 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~2,8 kg
each double contact ~0,4 kg

Bohrungen in der
Befestigungswand
mounting dimensions

N ↑ ↓ U

ø96

104

5,5
104
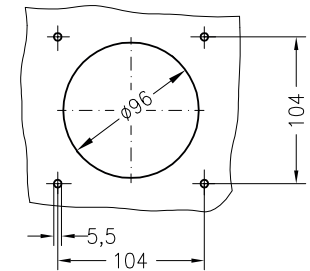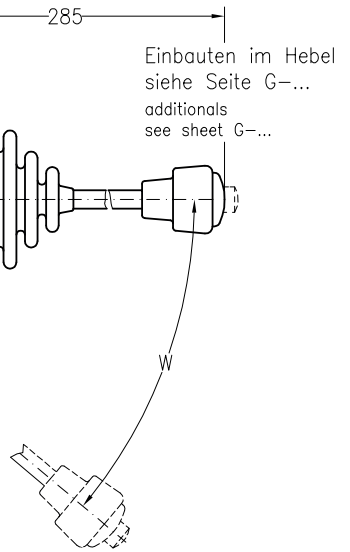
Typ **VNS2––F–V**   Antrieb V   siehe Seite J–VNS2–2/3
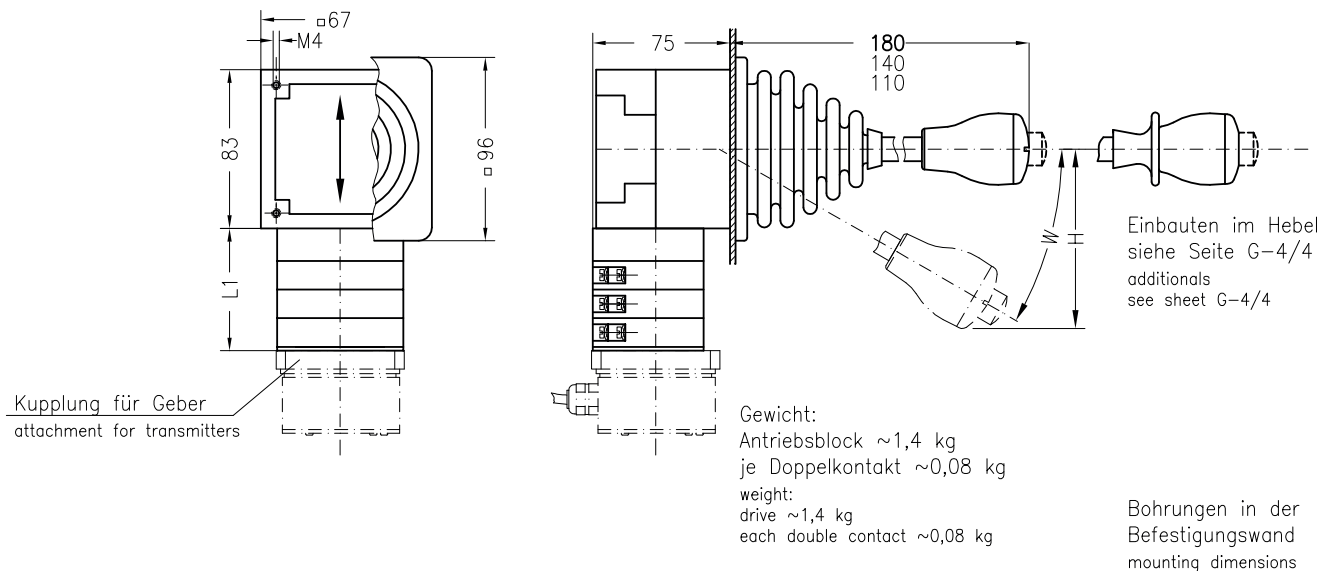type   drive V   see sheet J–VNS2–2/3
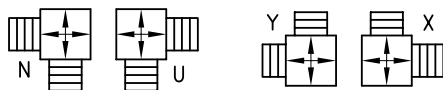
□ 121
□ 104
M5

□144

L1

L2

Blickrichtung
view direction

Querrichtung
cross direction

max. ø120

max. ø120

115   220 oder 285

Kontaktanschlüsse
terminals

Einbauten im Hebel
siehe Seite G–...
W additionals
see sheet G–...

Kupplung für Geber
attachment for transmitters

Anordnung
arrangement

N ↕ ↔ U

Y ↕ ↔ X

Gewicht:
Antriebsblock ~3 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~3 kg
each double contact ~0,4 kg
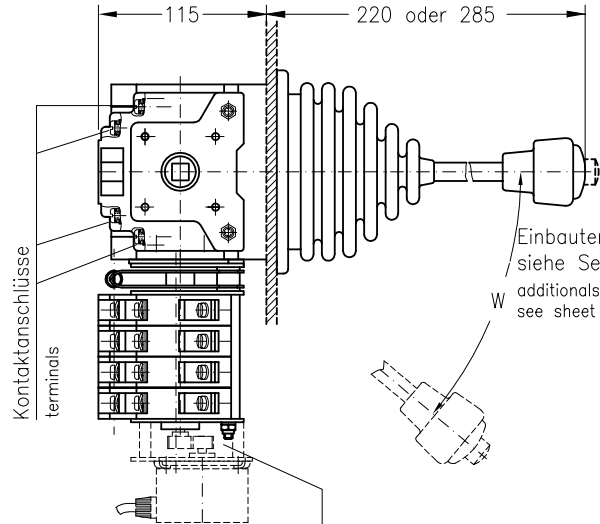
Stellungen	W
1–0–1	20°
2–0–2	20°
3–0–3	30°
4–0–4	33°
5–0–5	30°
6–0–6	35°

Maß L1 oder L2 dimension L1 or L2	58	80	102	124	146	168	190	212	234	256
Anzahl Doppelkontakte number of double contacts	1	2	3	4	5	6	7	8	9	10

Bohrungen im Gehäusedeckel
bores at cover

ø96
5,5
104
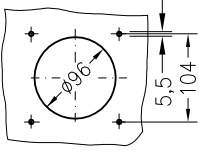
Bohrungen in der Rückwand
bores at back board

5,5
104

	Anordnung arrangement						Schaltrichtung switching direction	
	VNS2–E(R)		VNS2––V(R)		VNS2––V(R)		linke Hand left hand	rechte Hand right hand
	linke Hand	rechte Hand	linke Hand	rechte Hand	linke Hand	rechte Hand		
Blick-richtung view direction	N left	U right	N left	U right	N left	U right		
Quer cross	U	N	Y	X	X	Y		

Schaltrichtung: 1 L 3–4 2 ; 5 R 7–8 6

~113   285

144

104   121   104   M5

M5

L1
L2

Kupplung für Geber
attachment for transmitters

W   H
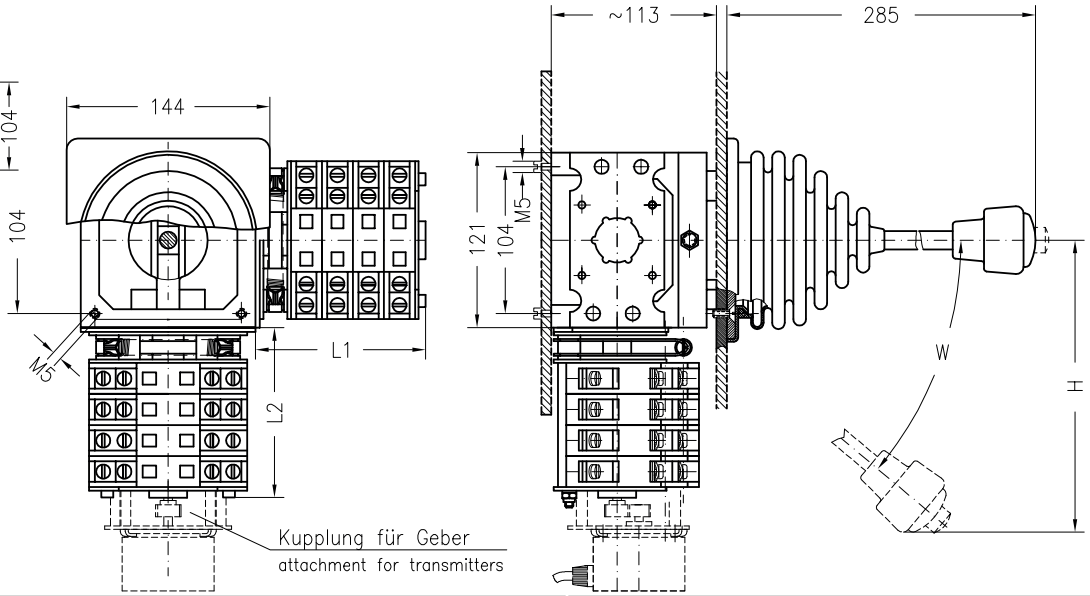
Anzahl Doppelkontakte number of double contacts	für Wechselstrom für Gleichstrom mit Blasung		VNS2– VNSB2–			for AC with permanent magnet for DC						Stellungen steps	Hebelausschlag lever deflection		Stellungen steps			Stellungen steps		
		1	2	3	4	5	6	7	8	9	10		H	W		H	W	A	W
L1 L2 L3		58	80	102	124	146	168	190	212	234	256	1–0–1	120	20°	3–0–3	162	30°	5–0–5 200 40°
												2–0–2	200	40°	4–0–4	200	40°	6–0–6 200 40°

Antriebsart: drive: **E**
Typ type VNS(B)2 ᴺ/ᵤ E(R)
                L1
Zusatz bei Dauer-magnetblasung
addition by permanent magnet
Anzahl Doppelkontaktelemente
number of double contact elements

121   L1

Gewicht: weight:
Antriebsblock: drive: 2,8 kg
je Doppelkontakt: each double contact: 0,4 kg

V
VNS(B)2 ᴺ/ˣ/ʸ V(R)
        L1 L2
121
L2   L1
3 kg
0,4 kg

G
VNS(B)2 ᴳ G(R)
        L1
121
L1
3 kg
0,4 kg

GG
NS(B)2 ᴳᴳ GG(R)
        L1 L2
104   70
26   106   26
4,5 kg
0,4 kg
121
L

H
VNS(B)2 ᴴ H(R)
        L1 L2
121
L2
L1
4 kg
0,4 kg

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-VNS2-3/9   Joystick VNS2-FG, VNS2-FH for front mounting   **TI**-VNS2-3/9

Errors and technical
changes reserved.

Typ **VNS2−F−G**
type

Antrieb G
siehe Seite J−VNS2−2/3
drive G
see sheet J−VNS2−2/3

Gewicht:
Antriebsblock ~3 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~3 kg
each double contact ~0,4 kg

Kupplung für Potentiometer
attachment for potentiometers

Doppelkontaktelemente
double contact elements

□104
M5
□121
□144
L1

~113
285

Potentiometer PW70
potentiometer PW70
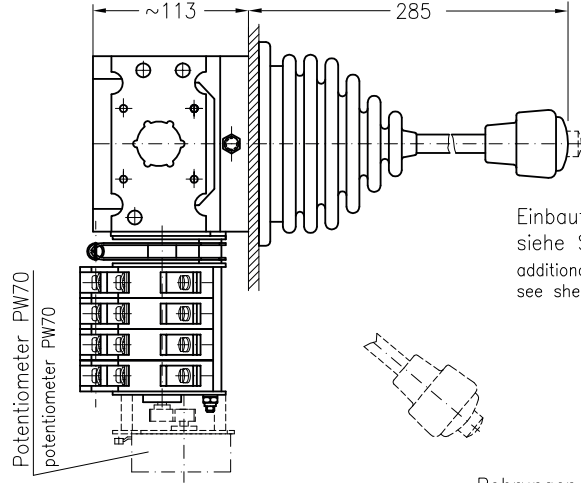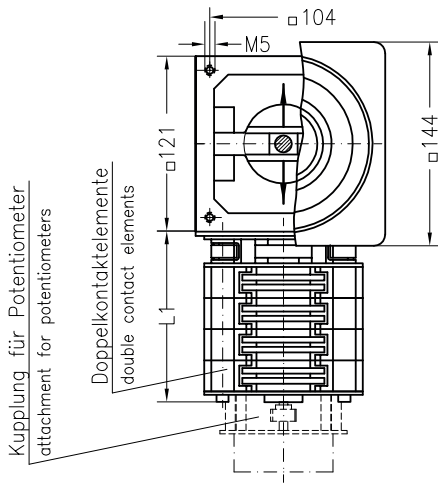
Einbauten im Hebel
siehe Seite G−...
additionals in handle
see sheet G−...

Bohrungen in der
Befestigungswand
mounting dimensions

Ø96
104
5,5
104
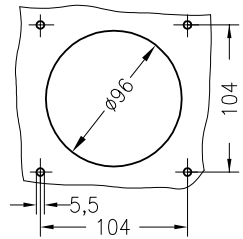
Typ **VNS2−−F−H**
type

Antrieb H
siehe Seite J−VNS2−2/3
drive H
see sheet J−VNS2−2/3

Gewicht:
Antriebsblock ~4 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~4 kg
each double contact ~0,4 kg

Kupplung für Encoder OER
attachment for encoder OER

Kontaktblock für
Contact block

Blickrichtung
view direction

Querrichtung
cross direction

Encoder OER
encoder OER

□104
M5
□144

115
□121
L2
L1
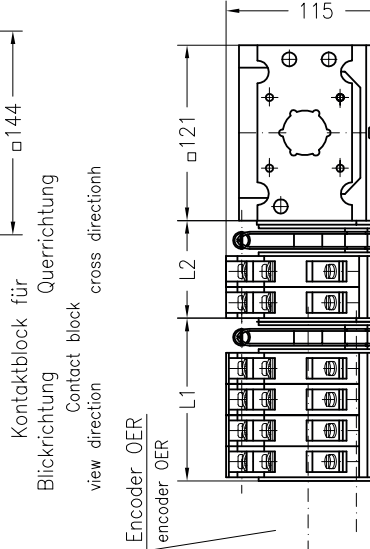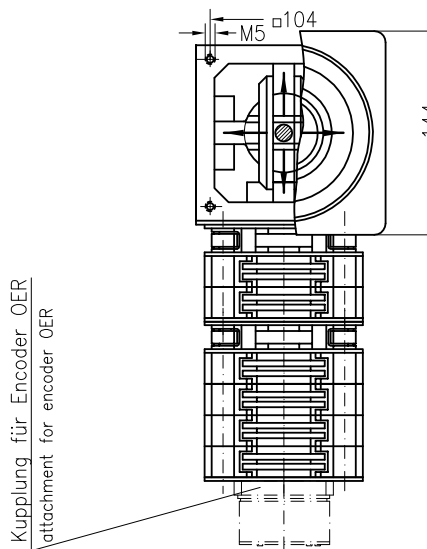
max. 40°
max. 200

Anzahl Doppelkontakte number of double contacts	1	2	3	4	5	6	7	8	9	10
Maß L1 oder L2 dimension L1 or L2	58	80	102	124	146	168	190	212	234	256

Typ **VNS2−A**
type
Antrieb A
siehe Seite J−VNS2−2/3
drive A
see sheet J−VNS2−2/3

□144

M5
□104
□121

Kupplung für Geber
attachment for transmitters

L1   ~113   285
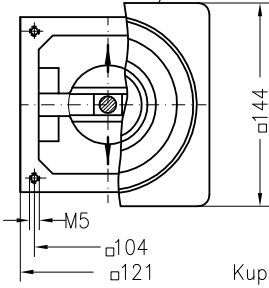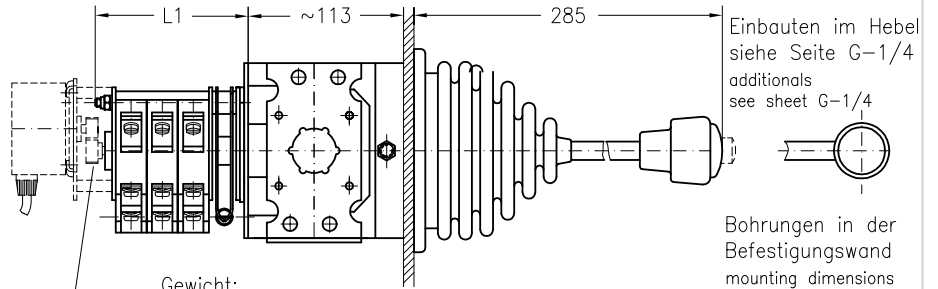
Gewicht:
Antriebsblock ~3,2kg
je Doppelkontakt ~0,4kg
weight:
drive ~3,2kg
each double contact ~0,4kg

Einbauten im Hebel
siehe Seite G−1/4
additionals
see sheet G−1/4

Bohrungen in der
Befestigungswand
mounting dimensions

104

104   96.

5,5
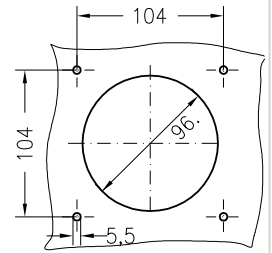
Typ **VNS2−−EA**
type
Antrieb EA
siehe Seite J−VNS2−2/3
drive EA
see sheet J−VNS2−2/3
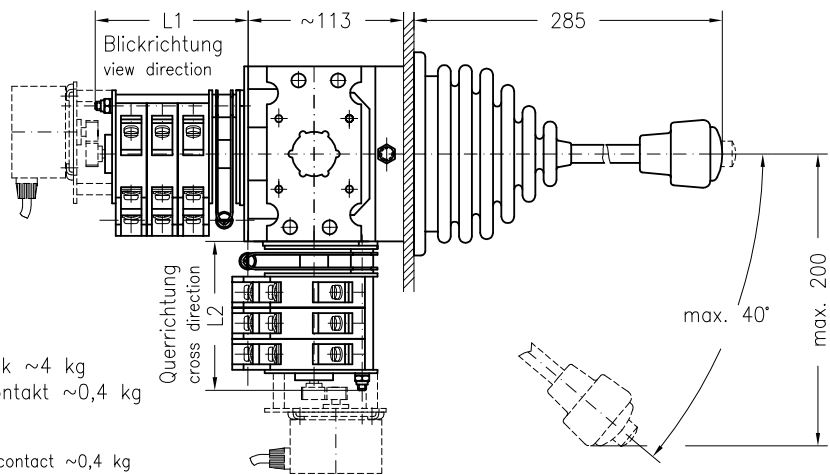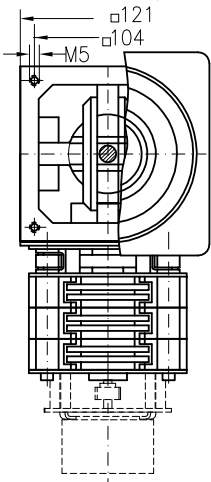
□121
□104
M5

L1   ~113   285
Blickrichtung
view direction

Querrichtung
cross direction
L2

Gewicht:
Antriebsblock ~4 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~4 kg
each double contact ~0,4 kg

max. 40°
max. 200

Typ **VNS2−−AA**
type
Antrieb AA   drive AA

siehe Seite J−VNS2−2/3
see sheet J−VNS2−2/3
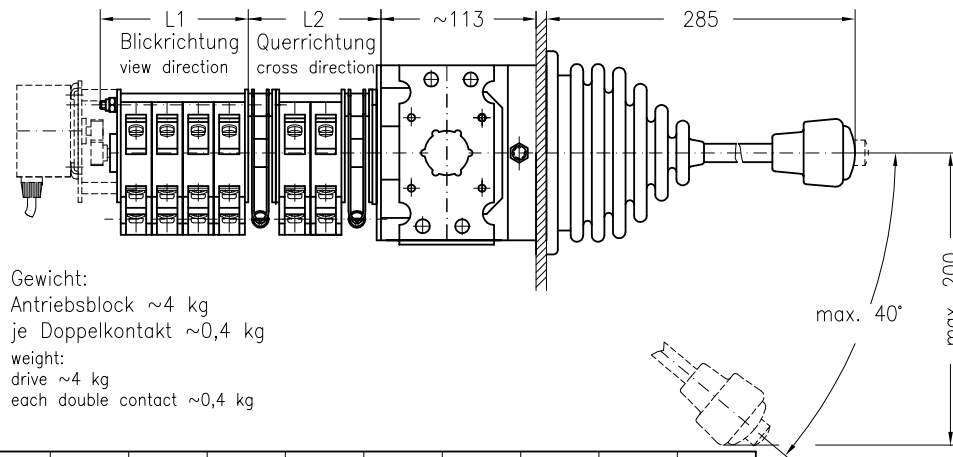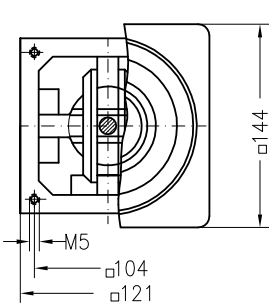
□144

M5
□104
□121

L1   L2   ~113   285
Blickrichtung   Querrichtung
view direction   cross direction

Gewicht:
Antriebsblock ~4 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~4 kg
each double contact ~0,4 kg
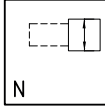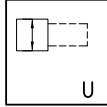
max. 40°
max. 200

Maß L1 oder L2 dimension L1 or L2	58	80	102	124	146	168	190	212	234	256
Anzahl Doppelkontakte number of double contacts	1	2	3	4	5	6	7	8	9	10

max.200 — max.200

285

39

70

130

8,5

□121

75 — 60,5

175

L2 — L1

120

170

192

5

M8

60

125

70

125

170
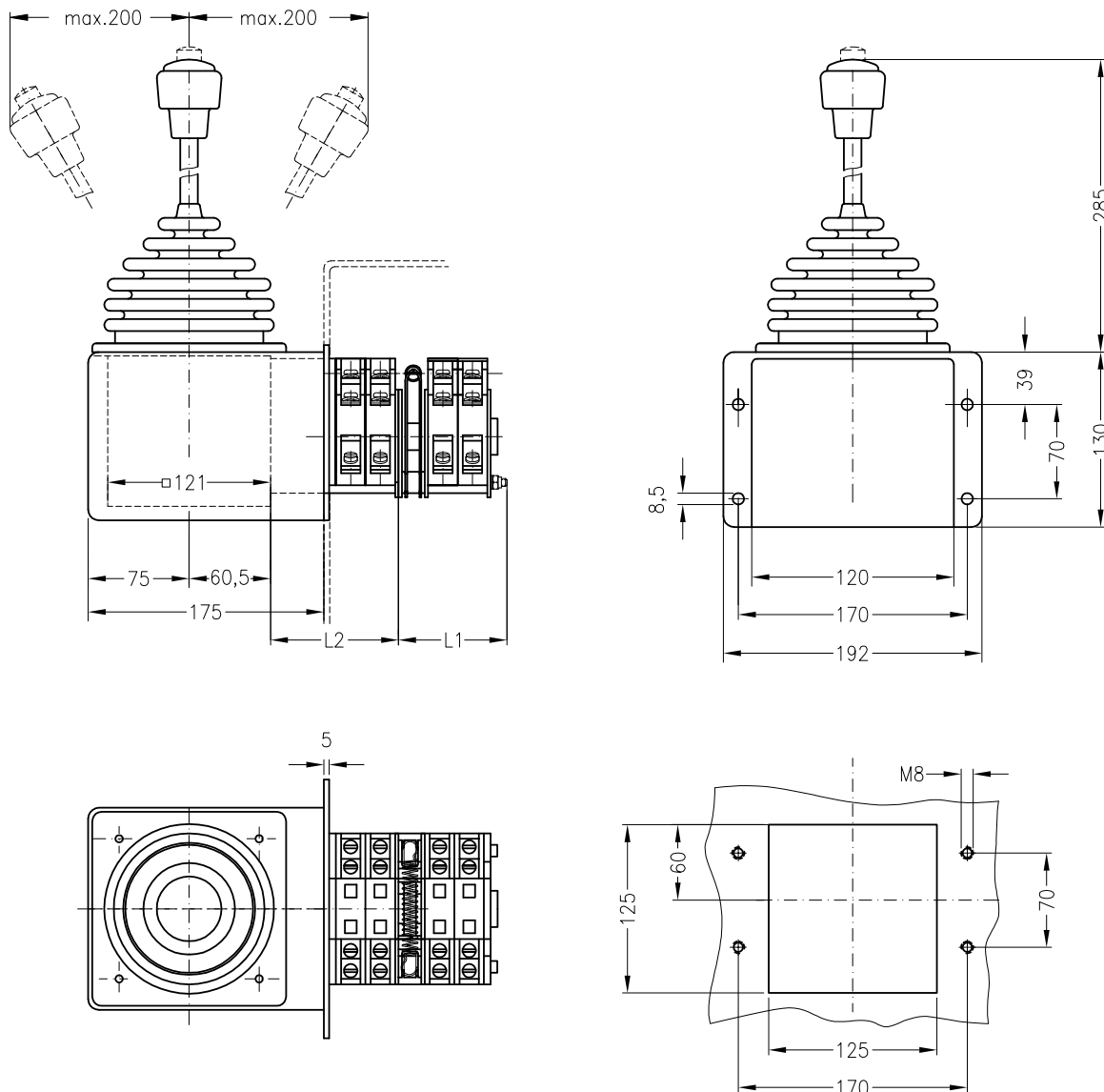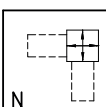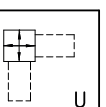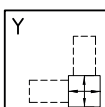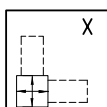
Anzahl Doppelkontakte number of double contakct elements		für Wechselstrom für Gleichstrom mit Blasung			for AC with permanent magnet for DC			VNS2– VNSB2–	
	1	2	3	4	5	6	7	8	9	10
L1 od. L2	58	80	102	124	146	168	190	212	234	256

Antriebsart type of drive F. Norm	E VNS(B)2–KE(R)	G VNS(B)2–KG(R)	H VNS(B)2––KH(R)	GG NS(B)2––KGG(R)
Kontaktanschlüsse seitlich connections on the side				
Gewicht: weight: Antriebsblock: drive: je Doppelkontakt: each double contact:	4,7 kg 0,4 kg	4,9 kg 0,4 kg	5,9 kg 0,4 kg	6,4 kg 0,4 kg

Typ / type   VNS2-QF-E

Typ / type	MAß A dim.	Gewicht weight
VNS24 QF-E	290	
VNS26 QF-E	340	14–17 kg
VNS29 QF-E	380	

Anordnung
linke Hand / left   rechte Hand / right

N   U

mounting arrangement

Schaltrichtung
linke Hand / left   rechte Hand / right

1   5
L   R
2   6

switch direction

Typ / type   VNS2-QF-V

Typ / type	MAß A dim.	Gewicht weight
VNS24 QF-V	290	
VNS26 QF-V	340	17–20 kg
VNS29 QF-V	380	

Anordnung
linke Hand / left   rechte Hand / right   linke Hand / left   rechte Hand / right

N   U   Y   X

mounting arrangement

Schaltrichtung
linke Hand / left   rechte Hand / right

1   5
3 — L — 4   7 — R — 8
2   6

switch direction

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-VNS2-7/9

Joystick VNS2, steel enclosure IP54, with hinged cover

TI-VNS2-7/9

Errors and technical changes reserved.

Typ / type VNS2−LF−G   NS2−LF−−GG

80 15
65
15 160 20
A
A−175
Ø37 125 Ø7
150 285
max. 40°
max. 200

Typ / type		MAß A dim.	Gewicht weight	Schaltrichtung switch direction						
				linke Hand left	rechte Hand right		linke Hand left		rechte Hand right	
VNS26 LF−G	NS26 LF−−GG	340		1 ↑ L 2	5 ↑ R 6		1 3 ↑ ↑ 2 4		5 7 ↑ ↑ 6 8	
VNS29 LF−G	NS29 LF−−GG	440	12−16 kg							
VNS214 LF−G	NS214 LF−−GG	550								

Typ / type VNS2−L(F)−−H
ohne Typenzusatz F Bodenmontage

80 15
65
15 160 20
A
A−175
Ø37 125 Ø7
150 285
max. 40°
max. 200

Typ / type		MAß A dim.	Gewicht weight	Schaltrichtung switch direction	
				linke Hand left	rechte Hand right
VNS26 L(F)−−H		340		1 ↑ 3 ← L → 4 2	5 ↑ 7 ← R → 8 6
VNS29 L(F)−−H		440	12−16 kg		
VNS214 L(F)−−H		550			

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-VNS2-8/9   Joystick VNS2 with two handles   **TI**-VNS2-8/9

Errors and technical
changes reserved.

Typ **VNS2--GGH**
type
Antrieb GGH
siehe Seite J−VNS2−3/3
drive GGH
see sheet J−VNS2−3/3
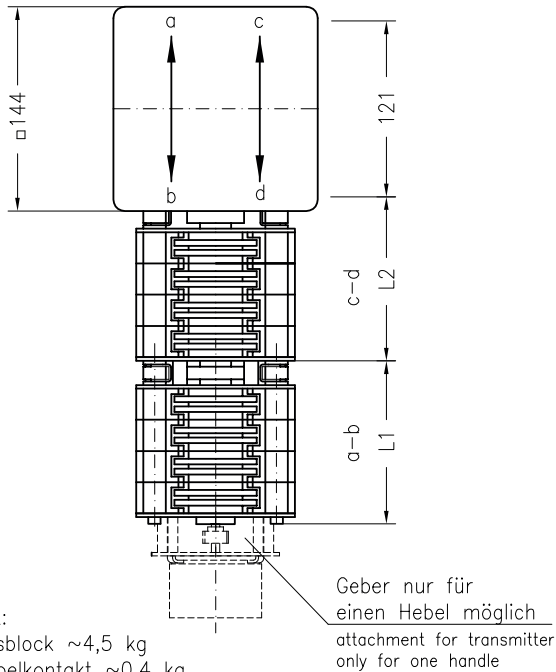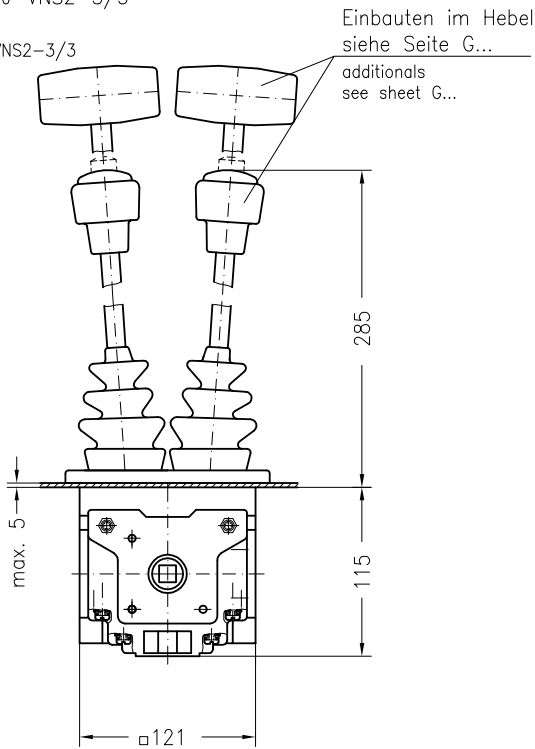
Einbauten im Hebel
siehe Seite G...
additionals
see sheet G...

285

max. 5

115

□121

□144

a   c

b   d

121

c−d   L2

a−b   L1

Geber nur für
einen Hebel möglich
attachment for transmitter
only for one handle

Gewicht:
Antriebsblock ~4,5 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~4,5 kg
each double contact ~0,4 kg

Typ **VNS2--GGAA**
type
Antrieb GGAA
siehe Seite J−VNS2−3/3
drive GGAA
see sheet J−VNS2−3/3

Einbauten im Hebel
siehe Seite G...
additionals
see sheet G...

285

max. 5

~113

c−d   L2

a−b   L1

Geber nur für
einen Hebel möglich
attachment for transmitter
only for one handle

□121

a   c

b   d

□144

M4

5.5   139.5

87

Ø110

141.5

R5

103

104

132
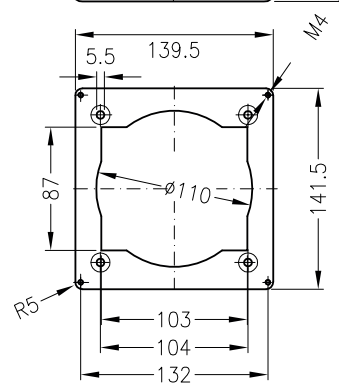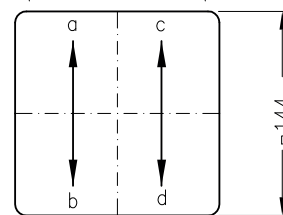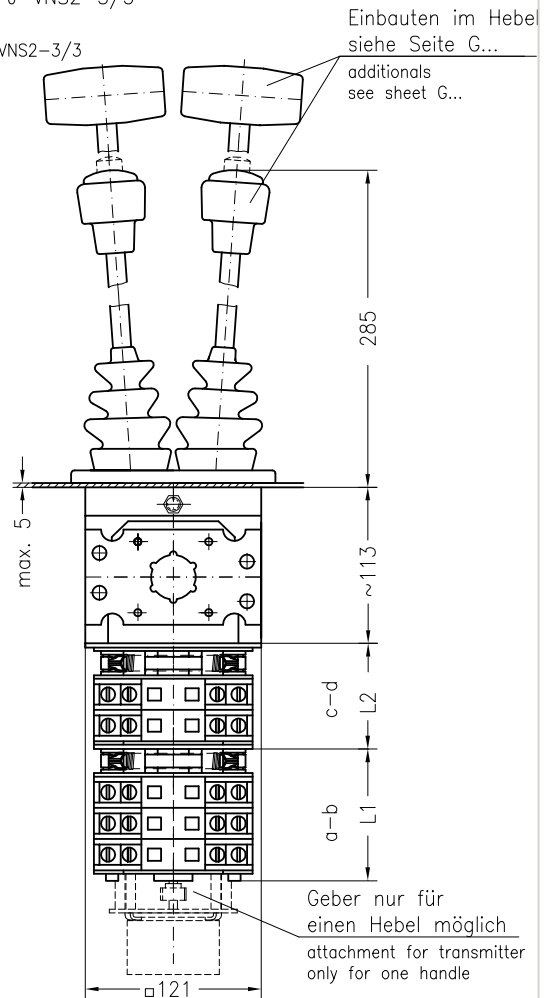
Bohrungen in der
Befestigungswand
nach NS275−GG
mounting dimensions

Maß L1 oder L2 dimension L1 or L2	58	80	102	124	146	168	190	212	234	256
Anzahl Doppelkontakte number of double contacts	1	2	3	4	5	6	7	8	9	10

Typ **VNS2--GGEA**
type
Antrieb GGEA
siehe Seite J-VNS2-3/3
drive GGEA
see sheet J-VNS2-3/3
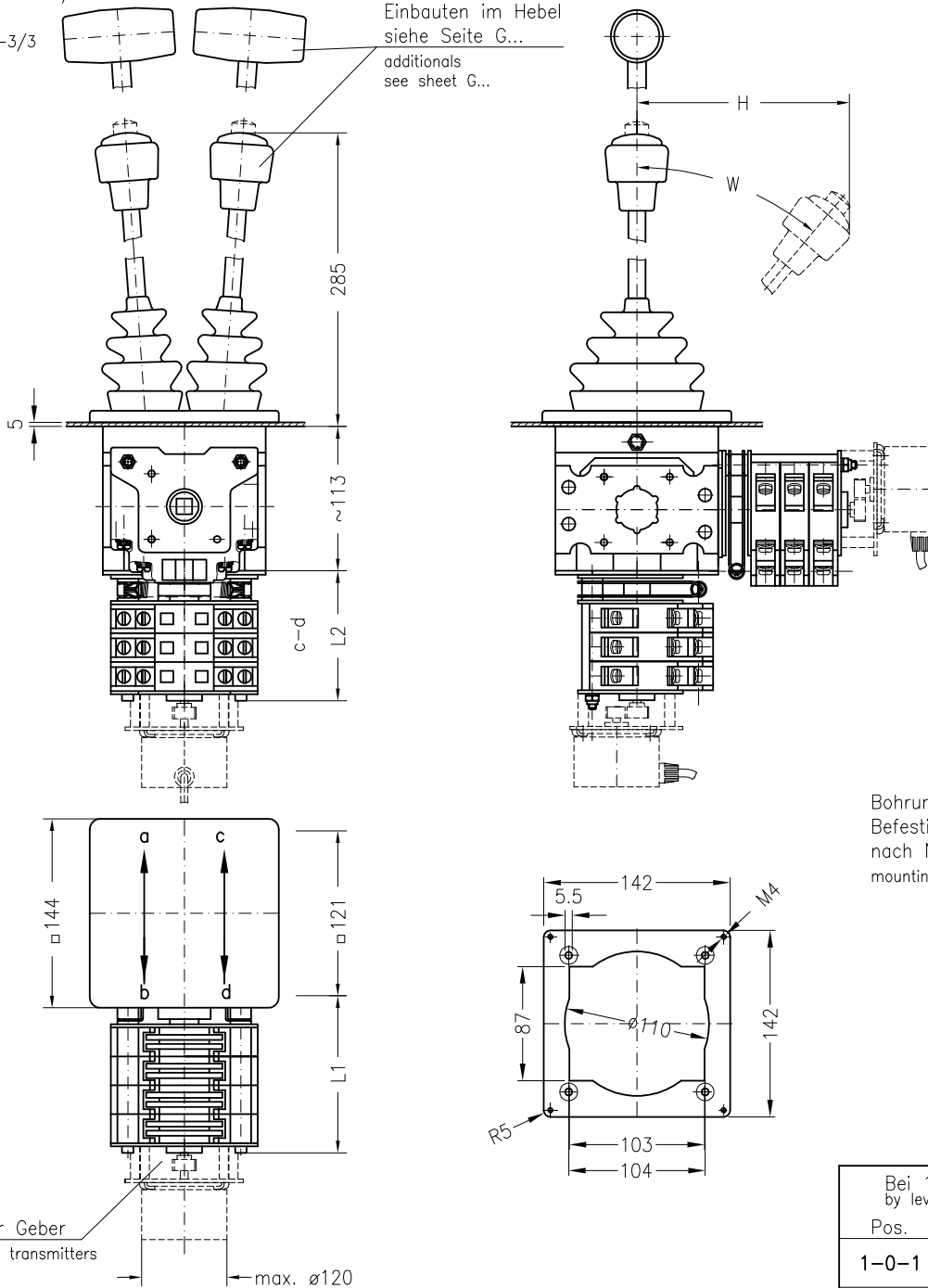
Einbauten im Hebel
siehe Seite G...
additionals
see sheet G...

H

W

285

5

~113

c-d

L2

Bohrungen in der
Befestigungswand
nach NS275-GG
mounting dimensions

a   c

b   d

□144

L1

□121

142

5.5

87

ø110

142

M4

R5

103

104

Kupplung für Geber
attachment for transmitters

max. ø120

Gewicht:
Antriebsblock ~4,5 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~4,5 kg
each double contact ~0,4 kg

Bei 180 mm Hebel by level 180 mm		
Pos.	W	H
1-0-1	20°	120
2-0-2	40°	200
3-0-3	30°	162
4-0-4	40°	200
5-0-5	40°	200
6-0-6	40°	200
7-0-7	40°	200

Maß L1 oder L2 dimension L1 or L2	58	80	102	124	146	168	190	212	234	256
Anzahl Doppelkontakte number of double contacts	1	2	3	4	5	6	7	8	9	10

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-NS200-1/2   Joystick NS2 knob or handle   **TI**-NS200-1/2

Errors and technical
changes reserved.

Einsatzschalter
switch
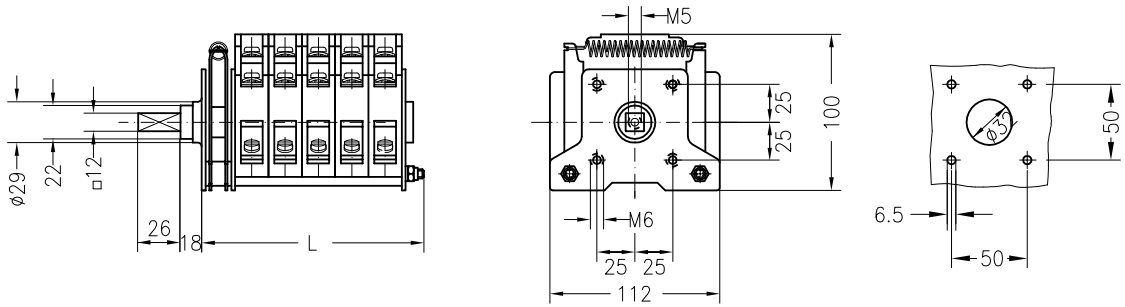
Fabrik-Norm	mit Rastung notching	NS201	NS202	NS203	NS204	NS205	NS206	NS207	NS208	NS209	NS210	
	mit Selbstrückgang spring return	NS201R		NS202R	NS203R	NS204R	NS205R	NS206R	NS207R	NS208R	NS209R	NS210R
	Länge L mm length	62	84	106	128	150	172	194	216	238	260	282
	Gewicht ~kg weight ~kg	0,8	1,4	2,0	2,6	3,2	3,8	4,4	5,0	5,6	6,2	6,8

Einsatzschalter mit Rosette 96x96 mm
switch with escutcheon 96x96 mm
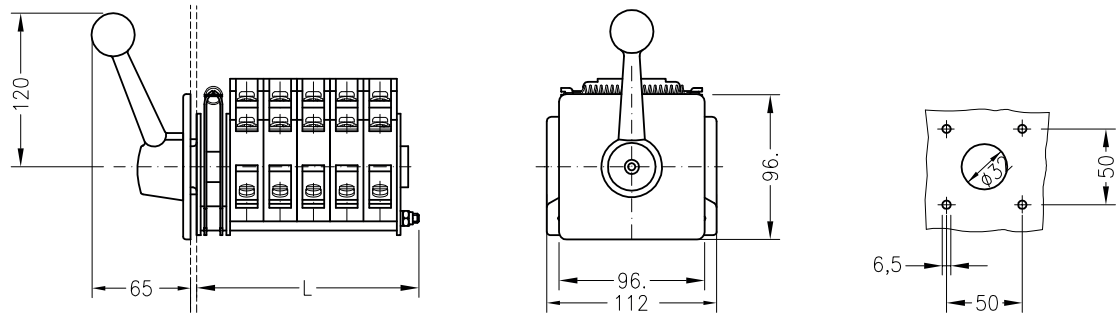
Fabrik-Norm	mit Rastung notching	NS201F	NS202F	NS203F	NS204F	NS205F	NS206F	NS207F	NS208F	NS209F	NS210F	
	mit Selbstrückgang spring return	NS201FR		NS202FR	NS203FR	NS204FR	NS205FR	NS206FR	NS207FR	NS208FR	NS209FR	NS210FR
	Länge L mm length	62	84	106	128	150	172	194	216	238	260	282
	Gewicht ~kg weight ~kg	0,8	1,4	2,0	2,6	3,2	3,8	4,4	5,0	5,6	6,2	6,8

Einbauschalter mit wasserdichter Rundrosette
switch with escutcheon , water resistant
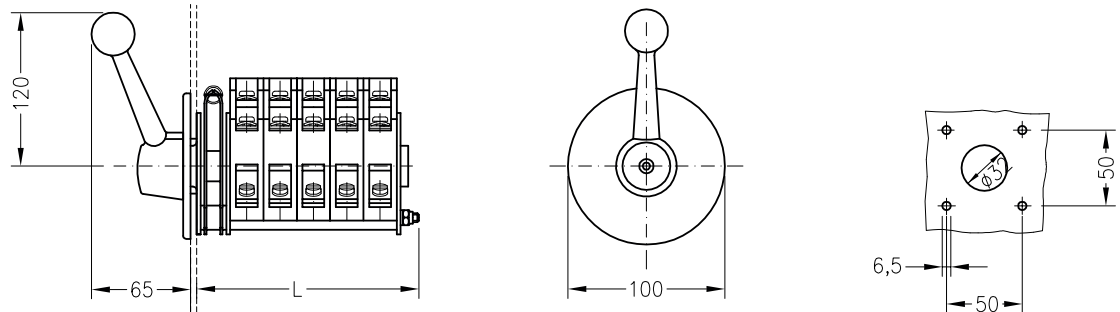
Fabrik-Norm	mit Rastung notching	NS201FD	NS202FD	NS203FD	NS204FD	NS205FD	NS206FD	NS207FD	NS208FD	NS209FD	NS210FD	
	mit Selbstrückgang spring return	NS201FDR		NS202FDR	NS203FDR	NS204FDR	NS205FDR	NS206FDR	NS207FDR	NS208FDR	NS209FDR	NS210FDR
	Länge L mm length	62	84	106	128	150	172	194	216	238	260	282
	Gewicht ~kg weight ~kg	0,8	1,4	2,0	2,6	3,2	3,8	4,4	5,0	5,6	6,2	6,8

Mit Kugelgriff Kg2A
Deckel— und Anschlußschrauben nichtrostend
mit auswechselbaren Kontaktelementen und
Nockenscheiben, Abwicklung beliebig.
Ball handle Kg2A
cover and stainless steel screws
double contact elements and
cams replaceable, any circuits.

Maximaler Drehwinkel 120˚
bei Wandmontage
Maximum lever angle 120˚
wall—mounted

33
120   57

120˚
0
120˚

A   70
C
M5
B   D
M6

Kabeleinführung
angeben
cable entry

evtl. mit Scharnieren
hinge
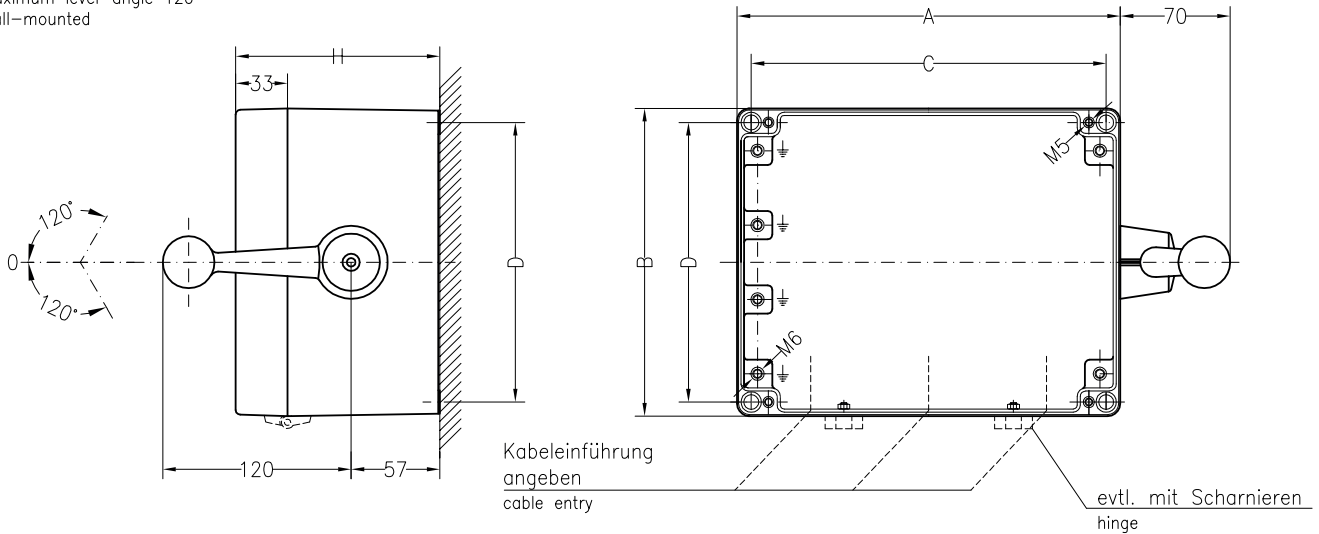
	Fabrik Norm									Kabeleinführung		
mit Rastung notching		mit Selbstrückgang spring return								cable entry		
normal normal	1) mit Heizung—Z und Pilztaste—P with heating—Z and emergency off button—P	normal normal	1) mit Heizung—Z und Pilztaste—P with heating—Z and emergency off button—P	A	B	C	D	H		oben above	unten below	Gew. ~kg weight
NS 207A G1	NS 207A GZP1	NS 207A GR1	NS 207A GRZP1									
NS 207A G2	NS 207A GZP2	NS 207A GR2										
NS 207A G3	NS 207A GZP3	NS 207A GR3										
NS 207A G4				244	196	226	178	130				
NS 207A G5												
NS 207A G6	NS 207A GZP4	NS 207A GR4	NS 207A GRZP2									
NS 207A G7	NS 207A GZP5	NS 207A GR5	NS 207A GRZP3									
NS 210A G8	NS 210A GZP6	NS 210A GR6		319	194	301	176	130				
NS 210A G9	NS 210A GZP7	NS 210A GR7										

letzte Zahl = Anzahl der eingebauten Doppelkontakte
last number = quantity of mounted double contact elements

1) Bitte Spannung angeben
   please give supply voltage

max. 40°

max. 40°

IP65 IP00

Gewicht:
Antriebsblock   4,5 kg
+ je Doppelkontakt   0,4 kg
weight:
drive   4,5 kg
+ each double contact 0,4 kg

Gußoberteil
cast housing

Sondergriffe siehe Blatt 3/...
special handles see sheet 3/...

UGN

G22...

B...

Z

mechanische Nullverriegelung
mechanical interlock

Deckel abnehmbar
cover removable

Kontaktblock um 90° drehbar
contact block 90° rotatable

Bohrung in der Befestigungswand
mounting bores

ø50

240   110   63   L1   7

143

120

120   143

ø7 mm oder M6
ø7 mm or M6

Anzahl Doppelkontakte Number of double contacts		1	2	3	4	5	6	7	8	9	10
Maß L1 (mm) Dimension L1 (mm)	L1	58	80	102	124	146	168	190	212	234	256

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Maßblatt G58
Dimension sheet G58

64

⌀50

156

55

80

B

A

105

44

Pos. 5 Totmann
deadman

Wipptaste Pos. 7L
rocker switch

Wipptaste Pos. 7R
rocker switch

115

Gummistulpe V041N–UGDN
rubber boot

Adapter passend zu CS1, VCS0, VNS0, NNS0 und VNS2 Meisterschalter oder nach Kundenwunsch
adapter to CS1, VCS0 , VNS0, NNS0 and VNS2 controllers or on customers demand

70

Auf Wunsch andere Anordnungen
different configuration on request

Teflon Leitung
teflon cable

Pos. 6 L

Pos. 4 3 2 1   Pos. 6 R
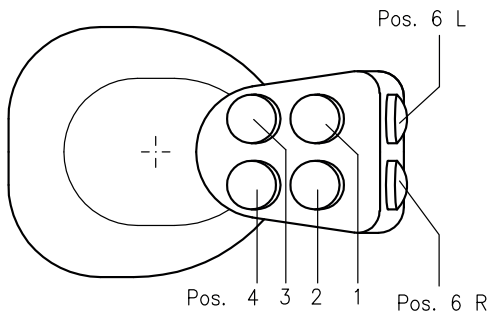
Drucktasten:

Silberkontakt mit Goldauflage Schutzart IP67
silver contact, gold plated push button IP67

48 VAC	500 mA	Ohmsche Last
24 VDC	2 A	ohmic value
min 5 VDC	1 mA	

Typ:
Mit flacher Kappe P9F– ...,
mit hoher Kappe P9H– ... └—+Farbe
with flat and high cap

Farbe colour		Kurzzeichen short cut
blau	(blue)	BU
gelb	(yellow)	YE
grün	(green)	GN
rot	(red)	RD
schwarz	(black)	BK
weiß	(white)	WH
grau	(grey)	GY
violett	(violet)	VT
orange	(orange)	OG

1−0−1 Stellungen
ohne Potentiometer
siehe Seite J−ST1−2/2
1−0−1 step
without potentiometer
see sheet J−ST1−2/2

20°   20°

114

16

70

71
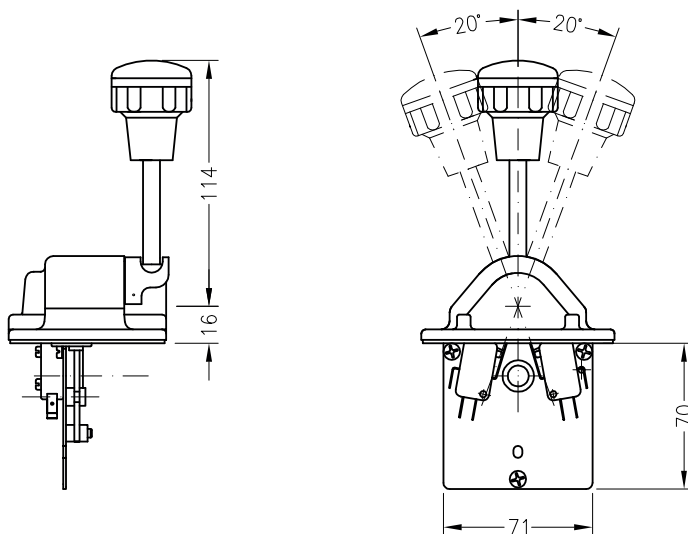
mit Potentiometer
siehe Seite J−ST1−2/2
with potentiometer
see sheet J−ST1−2/2

36°   36°

75

40

70

71

92
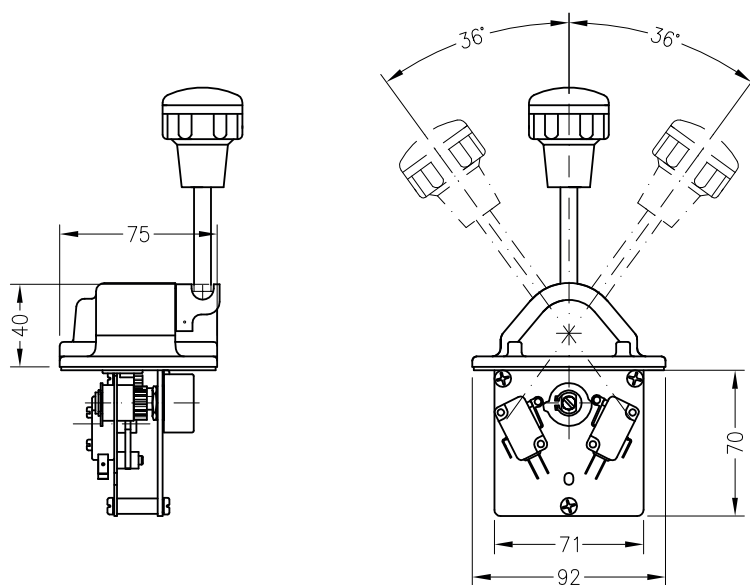
mit Verstärker
für Proportionalventil
siehe Seite J−ST1−2/2
amplifier
for proportional valve
see sheet J−ST1−2/2

63,5

55

75

46

4,5

90

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren
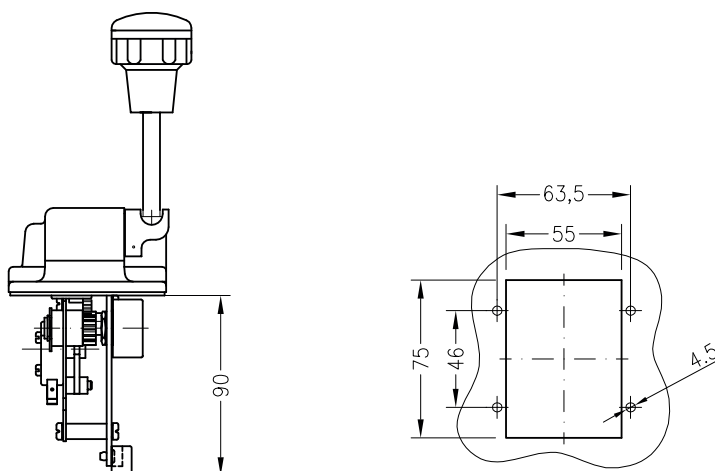
Fußtaster **SF**
foot pedal

SF_   Schutzart IP42
degree of protection IP42

SF_0d Schutzart IP56
degree of protection IP56

M20x1,5
Standard
standard

M20x1,5
wahlweise
optional
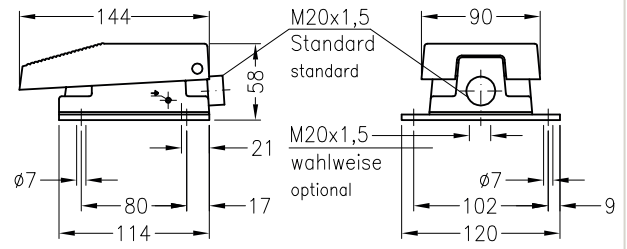
Fußtaster **FST**
foot pedal

Schutzart IP54
degree of protection IP54

Fußtaster **FSTS**
foot pedal

Schutzart IP54
degree of protection IP54
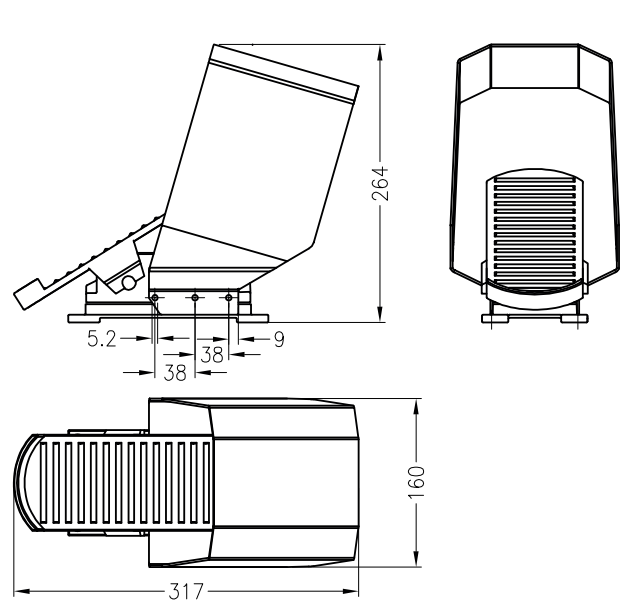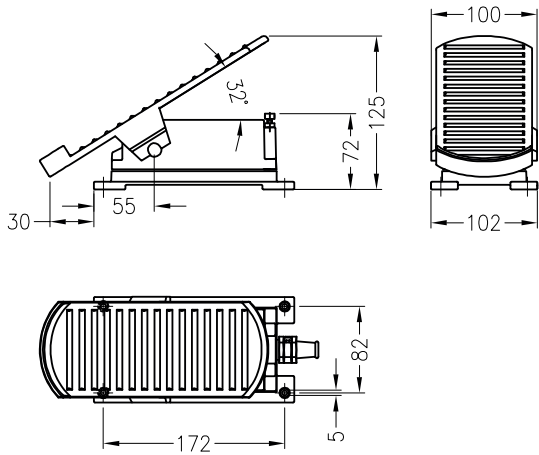
Fußtaster **FPS/FPW**
foot pedal

Schutzart IP42
degree of protection IP42

M20x1,5

01.03.2020

TI-F-2/2

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Foot pedal SFM

TI-F-2/2

Errors and technical
changes reserved.
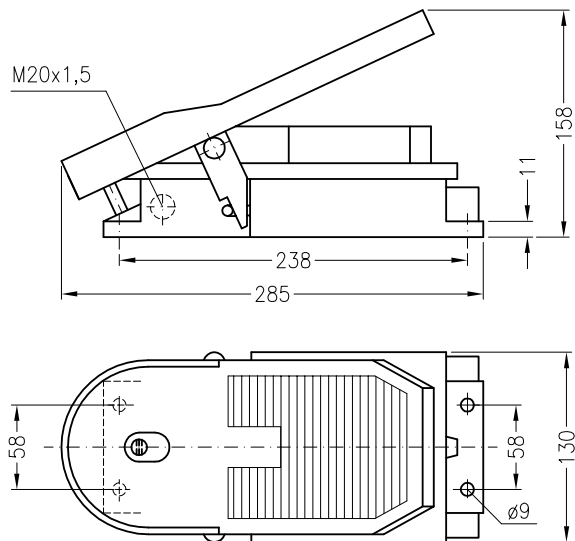
Technical data

Standards	EN ISO 13849-1; EN 60947-5-1
Enclosure	aluminium die-cast, powder-coated (steelblue)
Cover	glass-fibre reinforced thermoplastic (lightgrey)
Pedal	glass-fibre reinforced thermoplastic (black)
Connection type	screw connection terminals
Cable cross-section	max. 2.5 mm² (incl. conductor ferrules)
Cable entry	hole M20 x 1,5, backwards
Contact material	silver
Degree of protection	IP 65 to IEC/EN 60529
Switching system	snap action with double break, positive break NC contacts
B_{10d} (10% Load)	2 million
T_M	max. 20 years
Utilisation category	AC-15
I_e/U_e	4 A/230 VAC;
	2,5 A/400 VAC;
	1 A/500 VAC
Max. fuse rating	4 A gG/gN fuse
Ambient temperature	-25°C to +80°C
Mechanical life	> 1 million operations
Weight	~ 600g
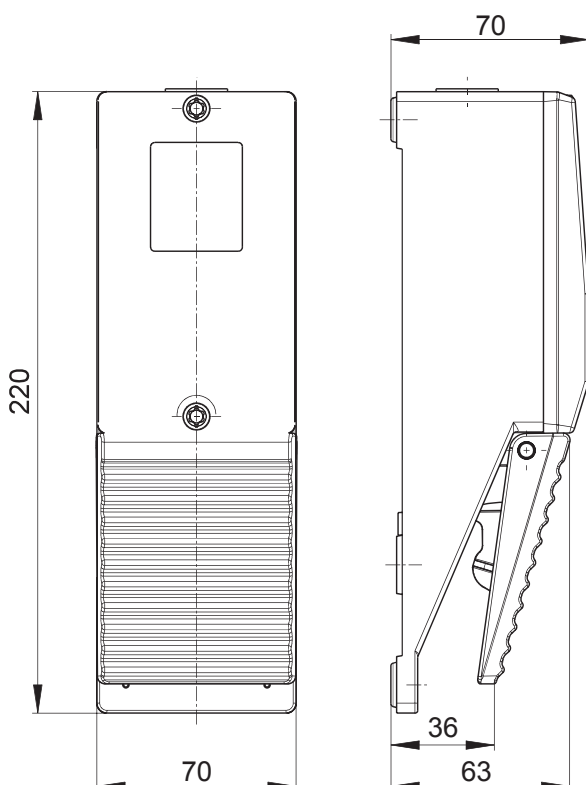
Mit Klappsitz KSGF nach TI–KS–1/2
with collapsible chair KSGF, TI–KS–1/2
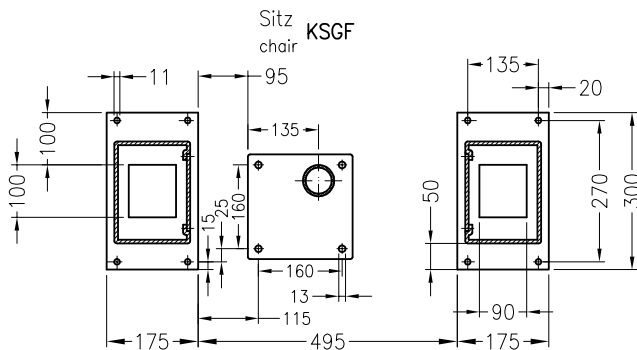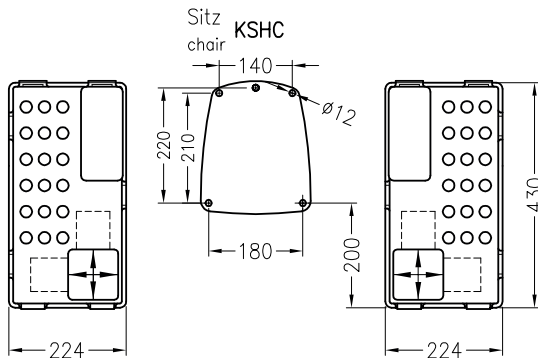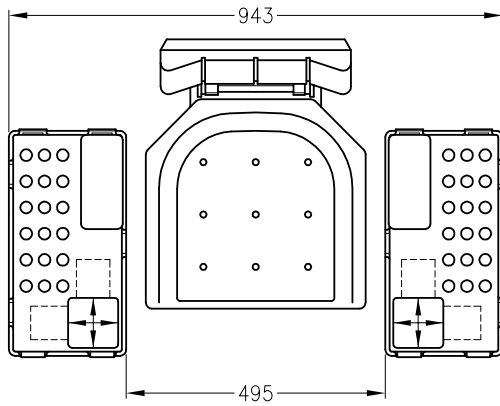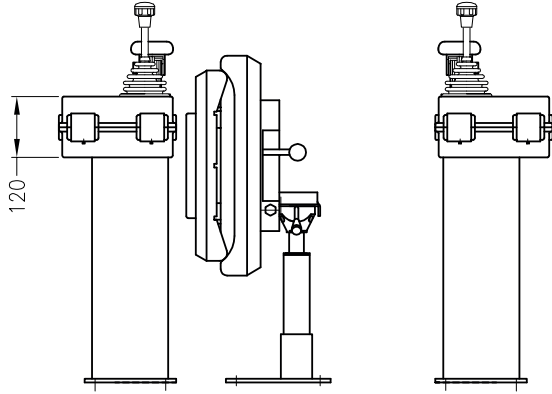
Mit Klappsitz KSHC nach TI–KS–2/2
with collapsible chair KSHC, TI–KS–2/2

Höhenverstellbare
und neigbare Armstützen
adjustable armrests
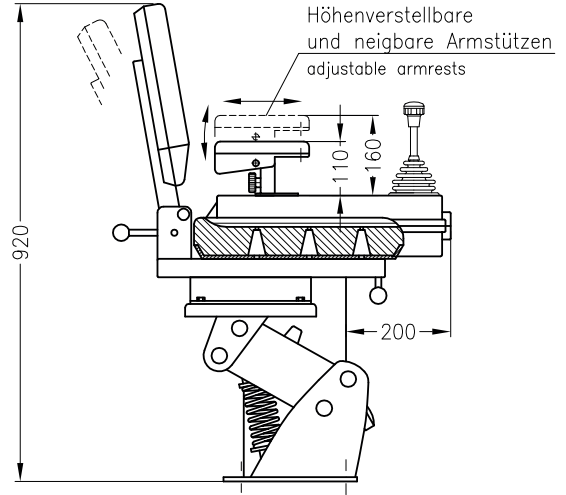
Typ Type	Ausführung Version
SV0K	mit rechteckigen Iso–Pultaufsätzen je Pulthälfte max. 18 Befehlsgeräte ⌀22,5 mm with rectangular fiberglass consoles SV0K each console max. 18 push buttons ⌀22,5 mm

Sitz **KSHC**
chair

Sitz **KSGF**
chair

Iso–Pulte grau
lackierte Konsole Standard: RAL 7032 grau
Iso–console units: grey
coated console standard: RAL 7032 grey

Stahlblech Pultaufsätze auf Anfrage
steel consoles on request

Gewicht ~40 kg
weight ~40 kg

Mit Klappsitz KSGF nach TI–KS–1/2
with collapsible chair KSGF, TI–KS–1/2
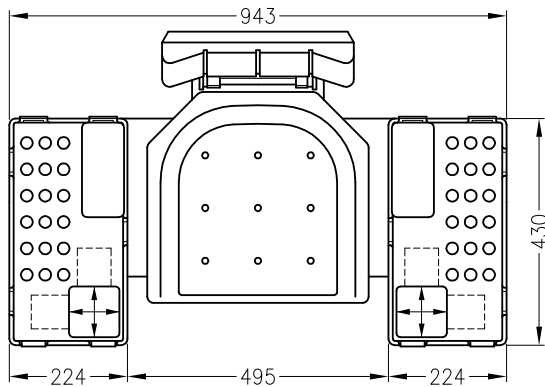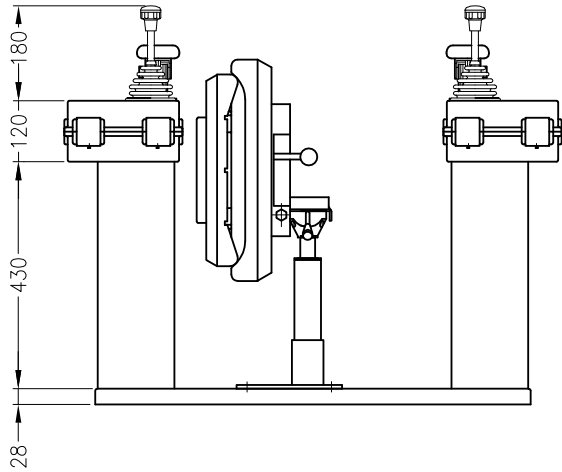
Mit Klappsitz KSHC nach TI–KS–2/2
with collapsible chair KSHC, TI–KS–2/2

Höhenverstellbare
und neigbare Armstützen
adjustable armrests
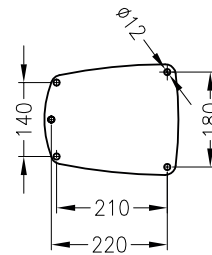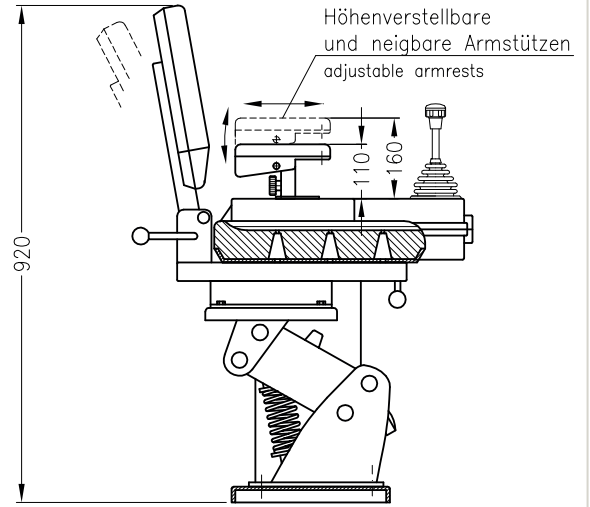
Typ Type	Ausführung Version
SV0BK	mit rechteckigen Iso–Pultaufsätzen je Pulthälfte max. 18 Befehlsgeräte ⌀22,5 mm with rectangular fiberglass consoles SV0K each console max. 18 push buttons ⌀22,5 mm

mit Stahlblechpulten 300x600x130
with steel consoles
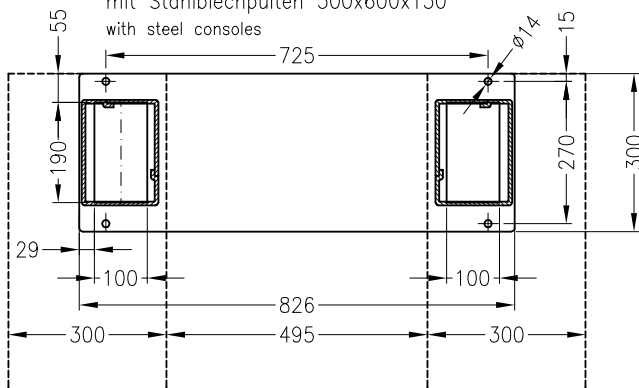
Iso–Pulte: grau
lackierte Konsole Standard: RAL 7032 grau
Iso–console units: grey
coated console standard: RAL 7032 grey

Stahlblech Pultaufsätze auf Anfrage
steel consoles on request

Gewicht ~80–100 kg
weight ~80–100 kg

Mit Klappsitz KSGF
nach Blatt TI–KS–1/2
with seat KSGF
see sheet TI–KS–1/2

180
140
40
190
570
28

Innenwände abnehmbar
inner cover removable

300

Scharnier
hinge

Verschluß
latch

210   500   210

500

Mit Klappsitz KSHC
nach Blatt TI–KS–2/2
with seat KSHC
see sheet M TI–KS–2/2

Längs–, Höhenverstellbare u.
neigbare Armstützen AS1–18
auf Seitenpult
adjustable armrests AS1–18
on console

920

300

920
710
396
15
14
270
300
70
160
∅100

4x für
Bodenbefestigung
bottom attached

Seitenpulte, Brücke und
Sitzkonsole aus Stahlblech
desks, base and consoles made by steel plate

Andere Pultgröße auf Wunsch
other console size on request

Standard: grau gepulvert
standard: grey powdered

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Kopfstütze auf Wunsch
headrest on request

Mit Schwingsitz S722
nach Blatt Si-S722C-1/2, -2/2
with seat S722 see sheet Si-S722C-1/2, -2/2

Längs-, höhenverstellbare u.
neigbare Armstützen AS1-18
auf Seitenpult
adjustable armrests AS1-18
on console

180
140

40

570

190

28

Mechanische Federung
mit Gewichtseinstellung
mechanical suspension with
weight adjustment

Aussenwände abnehmbar
cover removable

300

100

Sitz
seat

100

Scharnier
hinge

Sitzkissen Tiefenverstellung
seat cushion adjustment

30

30

500

Verschluß
latch

210   540   210

960

750

441   14

4 Kabeldurchführungen
4 cable entries

70

300

270

160

4x für
Bodenbefestigung
bottom attached

100

Seitenpulte, Brücke und
Sitzkonsole aus Stahlblech
desks, base and consoles made by steel plate

Standard: grau gepulvert
standard; grey powdered

Andere Pultgröße auf Wunsch
other console size on request

01.03.2020

TI-SV1C-1/3

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Maßblatt Steuerstand SV1C
Dimension sheet control station SV1C

TI-SV1C-1/3

neigbare Armstütze
am Sitz oder auf Pult
*adjustable armrest
at backrest or on
console*

Schwingsitz S722C siehe Blatt Si-S722C-1+2
seat S722C see sheet Si-S722C-1+2

mechanische Federung
Höhenverstellung (4-stufig)
alternativ:
pneumatische Federung 12V/24V
*mechanical suspension
height adjustment (4
steps)
option:
pneumatic suspension 12V/24V*

Darstellung mit Sitz S722C
und
mechanische Federung
in mittleren Position

*drawing shows seat S722C
and
mechanical suspension in
middle position*

Lendenwirbelstütze
lumbar support

Deckel mit Sitz
nach hinten klappbar
cover with seat collapsible

Scharnier
hinge

Hacken-Hebel-Verschluss
heel lever lock

manuelle Sitzverstellung
zur Anpassung
an die Armlänge
*lever for horizontal
adjustment seat*

Exzenterbremse für stufenlose
Feststellung
alternativ:
fußbetätiger Rastbolzen
*lever for rotation brake
option:
sping loaded pin for
rotation stop*

auf Wunsch
Kopfstütze
on request headrest

Sitz S722C
alternativ:
Sitz S210C

*seat S722C
option:
seat S210C*

Scharnier
hinged

kugelgelagerter
Drehkranz
ball bearing rot system

um 90° umsetzbare
Anschläge
(Drehwinkel max 270°)
*rot stopper 90° steps available
(rotation max 270°)*

Pultbreite	Drehradius
200	590
230	615
250	632

Andere Pultgrößen auf Wunsch
other dimensions possible

Sitzkissen Tiefenverstellung
seat cushion adjustment

option:
Joystick
joystick

Gewicht je nach
Einbauten 80-120kg
weight: 80-120kg

Standard: kieselgrau RAL 7032
standard paint: pebble grey RAL 7032

Drehpunkt
rot point

Sitz
seat

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Maßblatt Steuerstand SV1C
Dimension sheet control station SV1C

TI-SV1C-2/3

TI-SV1C-2/3

neigbare Armstütze
am Sitz oder auf Pult
*adjustablem armrest
at backrest or on
console*

Schwingsitz S210C siehe Blatt Si-S210(Y)C-1+2
seat S210C see sheet Si-S210(Y)C-1+2

mechanische Federung
Höhenverstellung (4-stufig)
alternativ:
pneumatische Federung 12V/24V
*mechanical suspension
height adjustment (4
steps)
option:
pneumatic suspension 12V/24V*

Hacken-Hebel-Verschluss
heel lever lock

manuelle Sitzverstellung
zur Anpassung
an die Armlänge
*lever for horizontal
adjustment seat*

Exzenterbremse für stufenlose
Feststellung
alternativ:
fußbetätiger Rastbolzen
option:
*spring loaded pin for
rotation stop*

Darstellung mit Sitz S210YC
und
mechanische Federung
in mittleren Position

*drawing shows seat S210YC
and
mechanical suspension in
middle position*

Lendenwirbelstütze
lumbar support

Deckel mit Sitz
nach hinten klappbar
cover with seat collapsible

Scharnier
hinge

Sitz S210C
alternativ:
Sitz S722C

*seat S210C
option:
seat S722C*

Scharnier
hinged

auf Wunsch
Kopfstütze
on request headrest

kugelgelagerter
Drehkranz
ball bearing rot system

um 90° umsetzbare
Anschläge
(Drehwinkel max 270°)
rot stopper 90° steps available
(rotation max 270°)

Sitzkissen Tiefenverstellung
seat cushion adjustment

Drehpunkt
rot point

Sitz
seat

option:
Joystick
joystick

Fußauflage
foot rest

Gewicht je nach
Einbauten 80-120kg
weight: 80-120kg

Standard: kieselgrau RAL 7032
standard paint: pebble grey RAL 7032

Andere Pultgrößen auf Wunsch
other dimensions possible

Pultbreite	Drehradius
200	590
230	615
250	632

Dimensions shown: 430, 60, 475, 960, 1025, 140, 600, R615, 230, 565, 30, 30, 200, 200, 80, 72, 450, 203, 240-250, 240-250, 6, 6, +80°, 90°

01.03.2020

TI-SV1C-3/3

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Maßblatt Steuerstand SV1C
Dimension sheet control station SV1C

TI-SV1C-3/3

Errors and technical changes reserved.

neigbare Armstütze am Sitz oder auf Pult
adjustablem armrest at backrest or on console

Schwingsitz S722C siehe Blatt Si-S722C-1+2
seat S722C see sheet Si-S722C-1+2

mechanische Federung Höhenverstellung (4-stufig) alternativ:
pneumatische Federung 12V/24V
mechanical suspension height adjustment (4 steps)
option:
pneumatic suspension 12V/24V

Hacken-Hebel-Verschluss
heel lever lock

manuelle Sitzverstellung zur Anpassung an die Armlänge
lever for horizontal adjustment seat

Exzenterbremse für stufenlose Feststellung
alternativ:
fußbetätiger Rastbolzen
lever for rotation brake
option:
spring loaded pin for rotation stop

Darstellung mit Sitz S722C und mechanische Federung in mittleren Position
drawing shows seat S722C and mechanical suspension in middle position

Lendenwirbelstütze
lumbar support

Deckel mit Sitz nach hinten klappbar
cover with seat collapsible

Scharnier
hinge

Sitzkissen Tiefenverstellung
seat cushion adjustment

option:
Joystick
joystick

Fußauflage höhenverstellbar
foot rest adjustable in hight

Sitz
seat

Pultbreite	Drehradius
300	680
300J	680
350	722,5

Andere Pultgrößen auf Wunsch
other dimensions possible

Gewicht je nach Einbauten 80-120kg
weight: 80-120kg

auf Wunsch Kopfstütze
on request headrest

Sitz S722C alternativ:
Sitz S210C
seat S722C
option:
seat S210C

Scharnier
hinged

kugelgelagerter Drehkranz
ball bearing rot system

um 90° umsetzbare Anschläge (Drehwinkel max 270°)
rot stopper 90° steps available (rotation max 270°)

Standard: kieselgrau RAL 7032
standard paint: pebble grey RAL 7032

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

FSALV
Stationär
stationary

Sitzhöhenverstellung
height adjustment

Hebel für die horizontale
Sitzverstellung
lever for horizontal
seat adjustment

Standardfarbe: schwarz
standard paint: black

±80°
90°
30°
30°
30
30
32.5   380
445
4xØ11

verstellbare Armlehne
aufwärts/abwärts
und inwärts/auswärts
+ neigbar
adjustable armrest inclinable
upward/autward
downward/inward

Lendenwirbelstütze
lumbar support

flexibles Rohr für
Leitungen
flexible hoses for wires

Rückenlehnenverstellung
backrest adjustment

Kopfstütze auf Wunsch
headrest on request

Schwingsitz S722 nach
Si−S722C−1/2, −2/2
seat S722 see sheet
Si−S722C−1/2, −2/2

80

Sitzplattenneigung 3−11°
angle adjustment of seat plate
3−11°

135

425
455

Gewichtseinstellung
weight adjustment
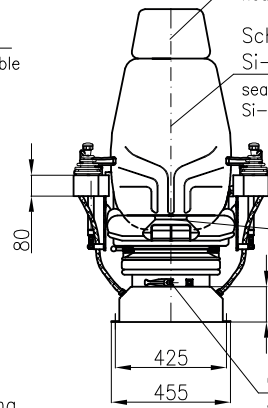
FSALVDS
Drehbar mit Drehscheibe
rotary with turning disc

Sitzhöhenverstellung
height adjustment
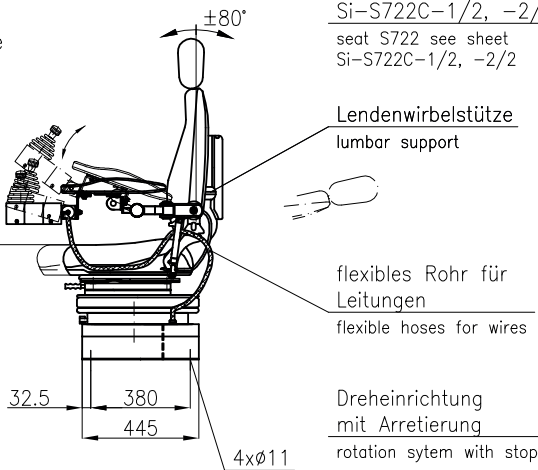
Standardfarbe: schwarz
standard paint: black

±80°
30
30
32.5   380
445
4xØ11

Schwingsitz S722 nach
Si−S722C−1/2, −2/2
seat S722 see sheet
Si−S722C−1/2, −2/2

Lendenwirbelstütze
lumbar support

flexibles Rohr für
Leitungen
flexible hoses for wires

Dreheinrichtung
mit Arretierung
rotation sytem with stop

Kopfstütze auf Wunsch
headrest on request

Sitzplattenneigung 3−11°
angle adjustment of seat plate
3−11°

135

425
455

Gewichtseinstellung
weight adjustment
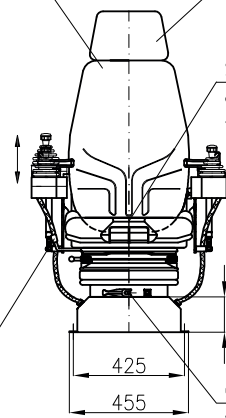
FSALVD
Drehbar mit Kugeldrehkranz
rotary with ball bearing

Sitzhöhenverstellung
height adjustment
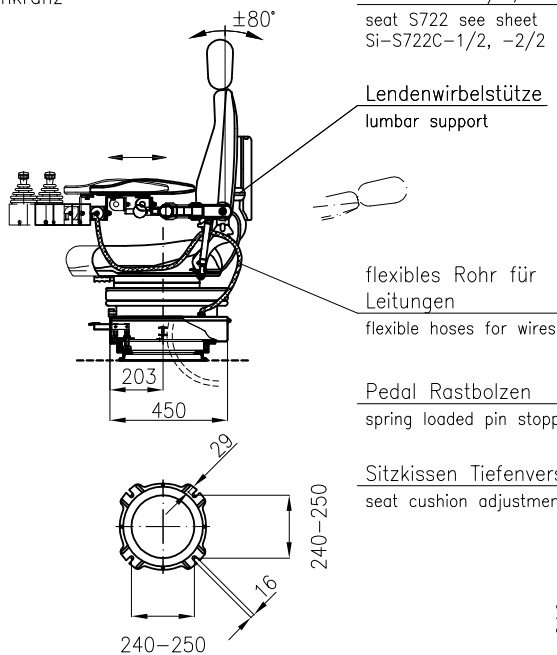
Standardfarbe: schwarz
standard paint: black

±80°
30
30
203
450

29
16
240−250
240−250

Schwingsitz S722 nach
Si−S722C−1/2, −2/2
seat S722 see sheet
Si−S722C−1/2, −2/2

Lendenwirbelstütze
lumbar support

flexibles Rohr für
Leitungen
flexible hoses for wires

Pedal Rastbolzen
spring loaded pin stopper

Sitzkissen Tiefenverstellung
seat cushion adjustment

Kopfstütze auf Wunsch
headrest on request

Sitzplattenneigung 3−11°
angle adjustment of seat plate
3−11°

72   80

210   135

Gewichtseinstellung
weight adjustment

Andere Größe auf Wunsch
other dimemsions on request

auf Wunsch
Kopfstütze
on request headrest

neigbare Armstütze
am Sitz oder auf Pult
adjustable armrest
at backrest or on console

flexibles Rohr für
Leitungen
flexibles hoses for wires

Gewichtseinstellung
weight adjustment

Sitz
seat

Beckengurt
auf Wunsch
Seat belt
on request

160
200
60
110
140
400
430
Ø11
100
100
500
200
540
940
55
55
30
30
120
160
200

Lendenwirbelstütze
lumbar support

Rückenlehnenverstellung
backrest adjustment

Pultneigung 0–12°
tilting 0–12°

Verstellschraube für Pultneigung
handwheel for console inclination

Sitzkissen Tiefenverstellung
seat cushion adjustment

Scharnier
hinge

Meisterschalter
controller

Maße auch nach Kundenwunsch
other dimensions possible

±80°

Pult + Sitz
±100

beide Pulthälften
hochklappbar + neigbar
each desk turnable upwards and tiltable

Sitzhöhenverstellung
height adjustment

Hebel für die horizontale
Sitzverstellung
lever for horizontal
adjustment seat (210 mm)

Hebel für die horizontale
Sitz- und Pultverstellung
lever for horizontal adjustment
seat and consoles (210 mm)

12°
30
380
435
60
30
30

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

Standardfarbe: tiefschwarz RAL 9005
standard paint: deep black RAL 9005

Schwingsitz S722 siehe Blatt Si-S722C-1/2, -2/2
seat S722 see sheet Si-S722C-1/2, -2/2

auf Wunsch
Kopfstütze
on request headrest

neigbare Armstütze
am Sitz oder auf Pult
adjustable armrest
at backrest or on console

flexibles Rohr für
Leitungen
flexibles hoses for wires

Gewichtseinstellung
weight adjustment

Sitz
seat

Beckengurt
auf Wunsch
Seat belt
on request

160
200
60
110
140

Ø11
400
430

100
100
500
200
30 | 30
540
940
120
160
200

Lendenwirbelstütze
lumbar support

Rückenlehnenverstellung
backrest adjustment

Pultneigung 0–12°
tilting 0–12°

Verstellschraube für Pultneigung
handwheel for console inclination

Dreheinrichtung
mit Arretierung
rotation sytem with
rotation stop

Heizung max. 4 kW 400 V
heating

Sitzkissen Tiefenverstellung
seat cushion adjustment

Scharnier
hinge

Meisterschalter
controller

Maße auch nach Kundenwunsch
other dimensions possible

±80°

Pult + Sitz
±100

beide Pulthälften
hochklappbar + neigbar
each desk turnable upwards and tiltable

12°

250
65
300
385

60
30
30

Sitzhöhenverstellung
height adjustment

Hebel für die horizontale
Sitzverstellung
lever for horizontal
adjustment seat (210 mm)

Hebel für die horizontale
Sitz- und Pultverstellung
lever for horizontal adjustment
seat and consoles (210 mm)

Ventilator-Lufteintritt
ventilator
air induction

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

Standardfarbe: tiefschwarz RAL 9005
standard paint: deep black RAL 9005

Schwingsitz S722 siehe Si-S722C-1/2, -2/2
seat S722 see sheet Si-S722C-1/2, -2/2

auf Wunsch Kopfstütze
on request headrest

Sitzplattenneigung 3–11°
angle adjustment of seat plate 3–11°

Rückenlehnenverstellung
backrest adjustment

Gewichtseinstellung
weight adjustment

flexibles Rohr für Leitungen
flexibles hoses for wires

Sitz
seat

Beckengurt auf Wunsch
Seat belt on request

200
60
160
540
660
100
100
303
203
500
R~560
200
90
30
30
Drehpunkt
rot point
540
940
120
160
200
140

neigbare Armstütze am Sitz oder auf Pult
adjustable armrest at backrest or on console

Lendenwirbelstütze
lumbar support

Pultneigung 0–12°
tilting 0–12°

Deckel mit Stuhl nach hinten abklappbar
cover with chair collapsible

Scharnier
hinge

Verstellschraube für Pultneigung
handwheel for console inclination

Exzenterbremse für stufenlose Feststellung
alternativ: fußbetätigter Rastbolzen
lever for rotation brake
option: spring loaded pin for rotation stop

Sitzkissen Tiefenverstellung
seat cushion adjustment

Scharnier
hinge

Meisterschalter
controller

Gewicht: je nach Einbauten 80–120 kg
weight: 80–120 kg

Maße auch nach Kundenwunsch
other dimensions possible

Pult + Sitz
±100

±80°

beide Pulthälften hochklappbar + neigbar
each desk turnable upwards and tiltable

380
90°
12°

Sitzhöhenverstellung
height adjustment

Sitzverstellung
Hebel für die horizontale
lever for horizontal adjustment seat (210 mm)

Hebel für die horizontale Sitz- und Pultverstellung
lever for horizontal adjustment seat and consoles (210 mm)

kugelgelagerter Drehkranz
bear ball rotating system

Fußauflage auf Wunsch
footrest on request

um 30° umsetzbare Anschläge
(Drehwinkel max 270°)
rot stoppers 30° steps available
(rotation max 270°)

30
30
60

80
72
450
203

A
A
A–A

240–250
29
16
240–250

Standardfarbe: tiefschwarz RAL 9005
standard paint: deep black RAL 9005

Schwingsitz S722 siehe Si-S722C-1/2, -2/2
seat S722 see sheet Si-S722C-1/2, -2/2

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

neigbare Armstütze am Sitz oder auf Pult
adjustable armrest at backrest or on console

Gewichtseinstellung
weight adjustment

flexibles Rohr für Leitungen
flexibles hoses for wires

auf Wunsch Kopfstütze
on request headrest

Beckengurt auf Wunsch
seat belt on request

200
60
140

100   Sitz   100
seat

303
203
500
R~560

Drehpunkt
rot point

80   80

540
940

120
160
200

200

Pultneigung 0–12°
tilting 0–12°

Deckel mit Stuhl nach hinten abklappbar
cover with chair collapsible

Scharnier
hinge

Verstellschraube für Pultneigung
handwheel for console inclination

Exzenterbremse für stufenlose Feststellung
alternativ: fußbetätigter Rastbolzen
lever for rotation brake
option: spring loaded pin for rotation stop

Sitzkissen Tiefenverstellung
seat cushion adjustment

Scharnier
hinge

Y–Ausschnitt
Y–cut

Meisterschalter
controller

Maße auch nach Kundenwunsch
other dimensions possible

–80°
+45°

Pult + Sitz
±100

beide Pulthälften hochklappbar + neigbar
each desk turnable upwards and tiltable

Sitzhöhenverstellung
height adjustment

30
30

90°
12°

A
A–A

80
72
450
203

240–250
240–250
16
2

Hebel für die horizontale Sitzverstellung
lever for horizontal adjustment seat (210 mm)

Hebel für die horizontale Sitz– und Pultverstellung
lever for horizontal adjustment seat and consoles (210 mm)

kugelgelagerter Drehkranz
bear ball rotating system

Fußauflage auf Wunsch
footrest on request

um 30° umsetzbare Anschläge (Drehwinkel max 270°)
rot stoppers 30° steps available (rotation max 270°)

Standardfarbe: tiefschwarz RAL 9005
standard paint: deep black RAL 9005

Komfortsitz Si–S210YC–1/2, –2/2
seat Si–S210YC–1/2, –2/2

Gewicht: je nach Einbauten 80–120 kg
weight: 80–120 kg

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Kopfstütze
headrest

verstellbare Armstütze
auf Pult
adjustable armrest
on consoles

um die Pultlängsachse
neigbar ±22°
tilting around
longitudinal axis ±22°

flexibles Rohr
für Leitungen
flexibles hoses for
wires

zusätzliche Höhe-
Neigungseinstellung
mit doppelverrastender
Sitzverstellschienen
auf Wunsch
additional seat height
and tilt adjustment with
double locking seat forward,
backward slides

Gewichtseinstellung
weight adjustment

Pulteschwenken
console slewing

auf Wunsch
andere Pultgröße
und Pultform
on request
other console size
and shape

Sitz
seat

~R800

beide Pulthälften aufwärts/abwärts
und inwärts/auswärts
+ neigbar
each console inclinable
upward/outward
downward/inward

Lendenwirbelstütze
lumbar support

manuelle Pult-
Neigungsverstellung
consoles mech. adjustment

linkes und rechtes Pult
separat vor und zurück
einstellbar.
left and right console separate
forward and backward adjust-
ment

Sitzplattenneigung
3–11°
angle adjustment
of seat plate
3–11°

Manuelle Sitzverstellung
zur Anpassung
an die Armlängen
lever for horizontal
adjustment seat (210 mm)

Sitzfederung
seat suspension

Hebel für die horizontale
Sitzverstellung
lever for horizontal
adjustment seat (210 mm)

Fußbetätigter Rastbolzen

Exzenterbremse für
stufenlose Feststellung
spring loaded pin for
rotation stop
alternativ: lever for
rotation brake

Sitzkissen
Tiefenverstellung
Seat cushion
adjustment

auf Wunsch
Meisterschalter
on request controller

Sitzhöhenverstellung
height adjustment

Scharnier
hinge

auf Wunsch
mechanische
Fußstützenverstellung
on request
foot rest adjustment

kugelgelagerter
Drehkranz
bear ball rotating system

um 30° umsetzbare Anschläge
(Drehwinkel max 270°)
rot stoppers 30° steps available
(rotation max 270°)

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

Standardfarbe: lichtgrau
standard paint: light gray

**Schwingsitz S722
siehe Blatt Si–S722C–1/2, –2/2**
seat S722
see sheet Si–S722C–1/2, –2/2

540

30

30

A

450

203

95

72

A–A

240–250

240–250

16

29

100

100

30

30

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-FSR-1/2   Control station FSR, non-rotatable   **TI**-FSR-1/2

Errors and technical
changes reserved.

auf Wunsch
Kopfstütze
on request headrest

neigbare Armstütze
am Sitz
adjustable armrest at seat

Sitzplattenneigung 3–11°
angle adjustment of seat plate
3–11°

Rückenlehnenverstellung
backrest adjustment

auf Wunsch
linkes und rechtes Pult
separat vor und zurück
einstellbar.
on request
left and right console separate
forward and backward adjust-
ment

flexibles Rohr
für Leitungen
flexibles hoses for
wires

Sitzfederung
seat suspension

Ø11

400
445
833

100
Sitz
seat
100

595

~R690

Pult schwenken
console horizontal
turnable

120
556
120

~R506

beide Pulthälften
hochklapp– und neigbar
each console folding upwards and tiltable

Lendenwirbelstütze
lumbar support

Feststellschraube
Schwenkbewegung
screw set for horizontal
turn

Verstellschraube
Pultneigung
console inclination

manuelle Pult-
neigungsverstellung
console tilt adjustment

Sitzkissen
Tiefenverstellung
seat cushion adjustment

auf Wunsch
Meisterschalter
on request controller

auf Wunsch
andere Pultgröße
on request
other dimensions possible

±80°

380

142

180

380

435

Sitzhöhenverstellung
height adjustment

Manuelle Sitzverstellung
zur Anpassung
an die Armlängen
lever for horizontal
adjustment seat (210 mm)

Hebel für die horizontale
Sitz– und Pultverstellung (210 mm)
lever for horizontal
adjustment seat and console (210 mm)

30
30

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

um 30° umsetzbare Anschläge
(Drehwinkel max 270°)
rot stoppers 30° steps available
(rotation max 270°)

Standardfarbe: lichtgrau RAL 7035
standard paint: light gray RAL 7035

Schwingsitz S722 siehe Blatt Si–S722C–1/2, –2/2
seat S722 see sheet Si–S722C–1/2, –2/2

Kopfstütze
auf Wunsch
headrest on request

neigbare Armstütze
am Sitz oder auf Pult
adjustable armrest on seat
or on consoles

Sitzplattenneigung 3–11°
angle adjustment of seat plate
3–11°

Rückenlehnenverstellung
backrest adjustment

auf Wunsch
linkes und rechtes Pult
separat vor und zurück
einstellbar.
on request
left and right console separate
forward and backward adjust-
ment

flexibles Rohr
für Leitungen
flexibles hoses for
wires

Sitzfederung
seat suspension

Sitz
seat

100

100

594

~R725

Pult schwenken
console horizontal
turnable

120

120

540

833

562

30

30

beide Pulthälften
hochklappbar + neigbar
each console turnable upwards and tiltable

Lendenwirbelstütze
lumbar support

Verstellschraube
Pulteschwenken
console slewing

Verstellschraube
Pultneigung
console inclination

manuelle Pult–
Neigungsverstellung
consoles mech. adjustment

* Fußbetätigter Rastbolzen
Exzenterbremse für
stufenlose Feststellung
rotation brake
spring loaded pin for
rotation stop

Sitzkissen
Tiefenverstellung
Seat cushion
adjustment

auf Wunsch
Meisterschalter
on request controller

auf Wunsch
andere Pultgröße
on request
other console size

Sitzhöhenverstellung
height adjustment

Manuelle Sitzverstellung
zur Anpassung
an die Armlängen
lever for horizontal
adjustment seat (210 mm)

Hebel für die horizontale
Sitzverstellung
lever for horizontal
adjustment seat (210 mm)

auf Wunsch
mechanische
Fußstützenverstellung
on request
foot rest adjustment

kugelgelagerter
Drehkranz
bear ball rotating system

um 30° umsetzbare Anschläge
(Drehwinkel max 270°)
rot stoppers 30° steps available
(rotation max 270°)

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

Standardfarbe: lichtgrau RAL 7035
standard paint: light grey RAL 7035

**Schwingsitz S722
siehe Blatt Si–S722C–1/2, –2/2**
seat S722
see sheet Si–S722C–1/2, –2/2

86

80

380

144

30

30

13°

13°

Mindestabstand
minimum distance
110

A–A

Ø340

260

260

Ø9

91

300

Ø340

300

* Rastbolzen nur möglich mit Gussfuß
+ zusätzlichem Abstandhalter zum Boden
Spring loaded pin only available with cast mounting
foot + additional distance holder to bottom

**Mindestabstand zum Boden beachten!
Nicht verwendbar mit SV0C11UG
ausser mit zusätzlichem Fuß**
Take note of minimum distance to bottom
Not applicable with SV0C11UG
except with additional spacer

auf Wunsch Kopfstütze
on request headrest

Sitzplattenneigung 3–11°
angle adjustment of seat plate 3–11°

Rückenlehnenverstellung
backrest adjustment

Gewichtseinstellung
weight adjustment

Sitz
seat

Beckengurt auf Wunsch
Seat belt on request

neigbare Armstütze am Sitz
adjustable armrest at backrest

Lendenwirbelstütze
lumbar support

Pultneigung 0–12°
tilting 0–12°

flexibles Rohr für Leitungen
flexibles hoses for wires

Verstellschraube für Pultneigung
handwheel for console inclination

Sitzkissen Tiefenverstellung
seat cushion adjustment

Meisterschalter
controller

Scharnier
hinge

Maße auch nach Kundenwunsch
other dimensions possible

Pult + Sitz
±100

beide Pulthälften hochklappbar + neigbar
each desk turnable upwards and tiltable

Sitzhöhenverstellung
height adjustment

Hebel für die horizontale Sitzverstellung
lever for horizontal adjustment seat (210 mm)

Hebel für die horizontale Sitz- und Pultverstellung
lever for horizontal adjustment seat and consoles (210 mm)

Sitz
seat

Gewicht: je nach Einbauten 80–120 kg
weight: 80–120 kg

Standardfarbe: tiefschwarz RAL 9005
standard paint: deep black RAL 9005

Schwingsitz S722 siehe Blatt Si–S722C–1/2, –2/2
seat S722 see sheet Si–S722C–1/2, –2/2

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

auf Wunsch
Kopfstütze
on request headrest

Sitzplattenneigung 3–11°
angle adjustment of seat plate
3–11°

Rückenlehnenverstellung
backrest adjustment

Gewichtseinstellung
weight adjustment

Beckengurt
auf Wunsch
Seat belt
on request

neigbare Armstütze
am Sitz oder auf Pult
adjustable armrest
at backrest or on console

Lendenwirbelstütze
lumbar support

Pultneigung 0–12°
tilting 0–12°

flexibles Rohr für
Leitungen
flexibles hoses for wires

Verstellschraube für Pultneigung
handwheel for console
inclination

Sitzkissen Tiefenverstellung
seat cushion adjustment

Fußbetätigter Rastbolzen
alternativ:
Exzenterbremse für
stufenlose Feststellung
spring loaded pin for
rotation stop
option: lever for rotation brake

Meisterschalter
controller

Scharnier
hinge

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

Maße auch nach Kundenwunsch
other dimensions possible

Pult + Sitz
±100

beide Pulthälften
hochklappbar + neigbar
each desk turnable upwards and tiltable
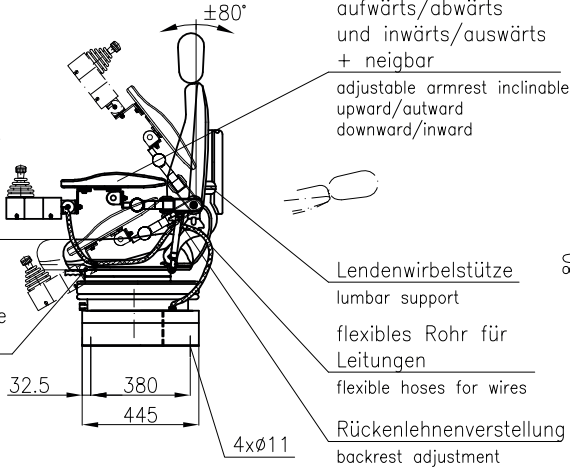
Sitzhöhenverstellung
height adjustment

Hebel für die horizontale
Sitzverstellung
lever for horizontal
adjustment seat (210 mm)

Hebel für die horizontale
Sitz– und Pultverstellung
lever for horizontal adjustment
seat and consoles (210 mm)

kugelgelagerter
Drehkranz
bear ball rot. system

Fußauflage auf Wunsch
footrest on request

um 30° umsetzbare Anschläge
(Drehwinkel max. 270°)
rot stoppers 30° steps available
(rotation max. 270°)

Standardfarbe: tiefschwarz RAL 9005
standard paint: black

Schwingsitz S722 siehe Blatt Si–S722C–1/2, –2/2
seat S722 see sheet Si–S722C–1/2, –2/2

A–A

Sitz
seat

Sitz
seat

neigbare Armstütze
am Sitz,
auf Wunsch auf Seitenpult
adjustable armrest on seat,
on request on console

Sitzkisseneinstellung 3–11°
angle adjustment of seat
cushion inclination 3–11°

Rückenlehnenverstellung
backrest adjustment

auf Wunsch
linkes und rechtes Pult
separat vor und zurück
einstellbar.
on request
left and right console separately
forward and backward adjust-
able

flexibles Rohr
für Leitungen
flexible hose for
wires

hydraulische Sitzfederung
auf Wunsch
pneumatische Sitzfederung
hydraulic seat suspension
on request
pneumatic seat suspension

100
Sitz
seat
100

R835

700

210

110

540

568

200

30   30

210

auf Wunsch
Kopfstütze
headrest on request

beide Pulthälften unabhängig
hochklappbar + neigbar
both consoles independently
collapsible upwards and tiltable

Lendenwirbelstütze
lumbar support

Verstellschraube
Pulte schwenken
console swiveling

Verstellschraube
Pultneigung
console tilt

manuelle Pult-
Neigungsverstellung
consoles mech. adjustment

Fußbetätigter Rastbolzen
oder
Exzenterbremse für
stufenlose Feststellung
spring loaded pin for
rotation stop
option: lever for
rotation brake

Sitzkissen
Tiefenverstellung
Seat cushion
adjustment

auf Wunsch
Meisterschalter
controller on request

auf Wunsch
andere Pultgröße
on request
other console size

A

A–A

80

72

450

203

240–250

240–250

16

29

Sitzhöhen-
und Neigungsverstellung
height and tilt adjustment
for seat

Manuelle Sitzverstellung
zur Anpassung
an die Armlängen
longitudinal seat adjustment
manually in order to suit
to armrests

Manuelle Sitzlängsverstellung für
Sitz zusammen mit Seitenpulten
longitudinal adjustment manually
for seat and consoles combined

auf Wunsch
mechanische
Fußstützenverstellung
on request
foot rest adjustment

kugelgelagerter
Drehkranz
ball bearing rotating system

um 30° umsetzbare Anschläge
(Drehwinkel max 270°)
rot stoppers 30° steps available
(rotation max 270°)

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

Standardfarbe: lichtgrau RAL 7035
standard paint: light grey RAL 7035

Komfort Sitz S210Y
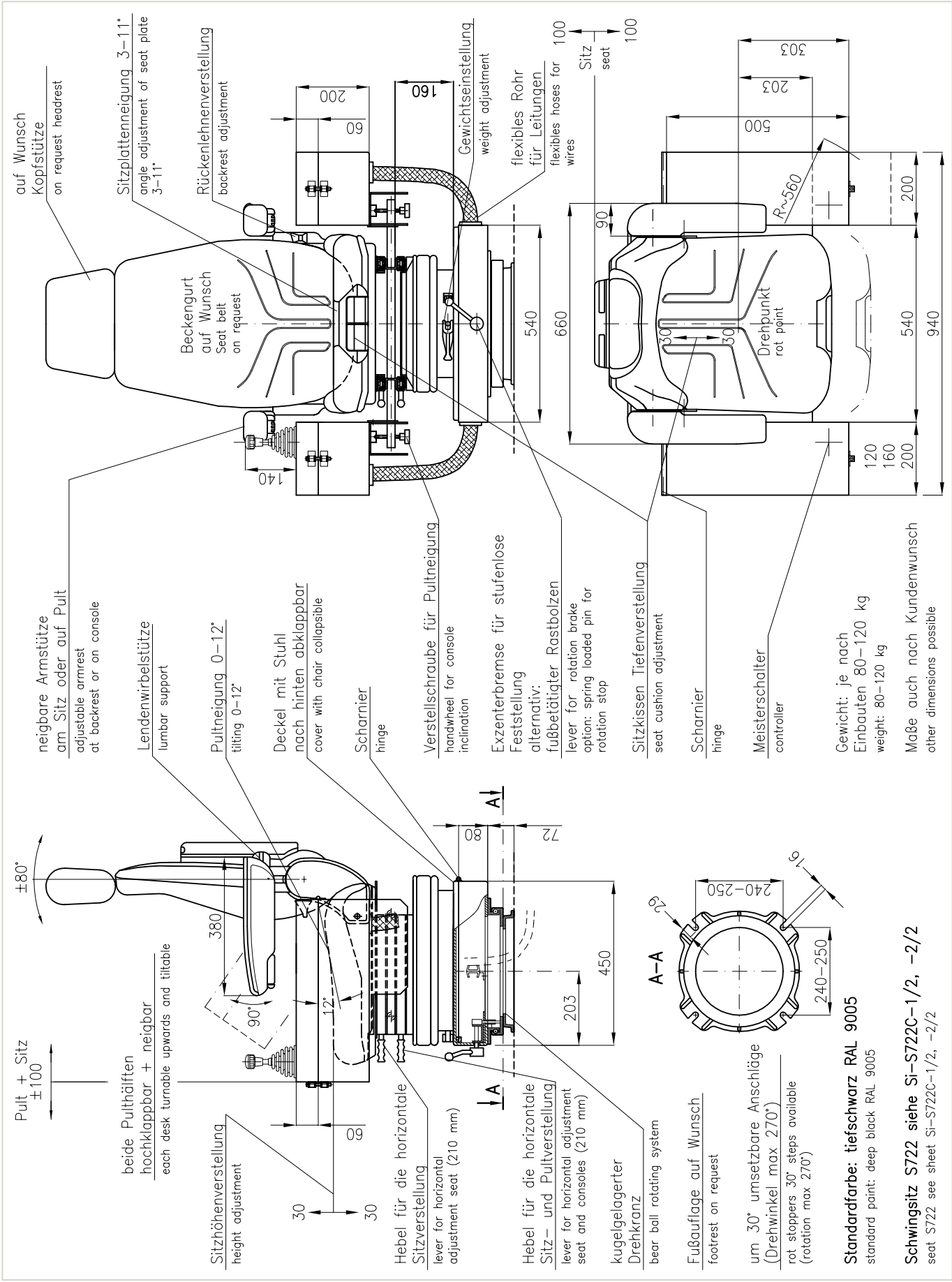**siehe Blatt Si-S210YC–1/2, –2/2**
seat S210Y
see sheet Si-S210YC–1/2, –2/2

Kopfstütze
auf Wunsch
headrest on request

neigbare Armstütze
auf Pult
adjustable armrest
on consoles

Rückenlehnenverstellung
backrest adjustment

auf Wunsch
linkes und rechtes Pult
separat vor und zurück
einstellbar.
on request
left and right console forward
and backward adjustment
separately

flexibles Rohr
für Leitungen
flexibles hoses for
wires

Sitzfederung
seat suspension

100

Sitz
seat

100

auf Wunsch
andere Pultgröße
on request
other console size

Pulte schwenken
console slewing

20°

5°

30

30

beide Pulthälften
hochklappbar + neigbar
each console turnable upwards and tiltable

Lendenwirbelstütze
lumbar support

Verstellschraube
Pulteschwenken–5° bis 20°
console slewing

Fußbetätigter Rastbolzen
oder
Exzenterbremse für
stufenlose Feststellung
spring loaded pin for
rotation stop
option: lever for
rotation brake

Sitzkissen
Tiefenverstellung
Seat cushion
adjustment

auf Wunsch
Meisterschalter
on request controller

A

A–A

240–250

240–250

16

29

Sitzhöhen–
und Neigungsverstellung
height and tilt adjustment
for seat

Flachtaster zur stufenlosen
Pultneigungseinstellung
flat switch for tilt adjustment
stepless

Manuelle Sitzverstellung
zur Anpassung
an die Armlängen
longitudinal seat adjustment
manually in order to suit
to armrests

Manuelle Sitzlängs–
verstellung für Sitz
zusammen
mit Seitenpulten
longitudinal adjustment manually
for seat and
consoles combined

auf Wunsch
mechanische
Fußstützenverstellung
on request
foot rest adjustment

kugelgelagerter
Drehkranz
ball bearing rotating system

um 30° umsetzbare Anschläge
(Drehwinkel max 270°)
rot stoppers 30° steps available
(rotation max 270°)

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

Standardfarbe: lichtgrau
standard paint: light grey

Schwingsitz S210Y
siehe Blatt Si–S210YC–1/2, –2/2
seat S210Y
see sheet Si–S210YC–1/2, –2/2

30°

30°

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Kopfstütze
auf Wunsch
headrest on request

Rückenlehnenverstellung
backrest adjustment

Sitzhöhen–
und Neigungsverstellung
height and tilt adjustment
for seat

Sitzfederung
seat suspension

100
Sitz
seat
100

neigbare Armstütze
auf Pult
adjustable armrest
on consoles

Pulte schwenken
console slewing

beide Pulthälften
hochklappbar + neigbar
each console turnable upwards and tiltable

Lendenwirbelstütze
lumbar support

Manuelle Sitzverstellung
zur Anpassung
an die Armlängen
longitudinal seat adjustment
manually in order to suit
to armrests

flexibles Rohr
für Leitungen
flexibles hoses for
wires

Fußbetätigter Rastbolzen
oder
Exzenterbremse für
stufenlose Feststellung
spring loaded pin for
rotation stop
option: lever for
rotation brake

Sitzkissen
Tiefenverstellung
Seat cushion
adjustment

auf Wunsch
Meisterschalter
on request controller

auf Wunsch
zusätzliche
Seitenkonsole
on request additional
sidekonsole

750

375

450

72–80

A–A

240–250

240–250

16

6

Manuelle Sitzlängs–
verstellung für Sitz
zusammen
mit Seitenpulten
longitudinal adjustment manually
for seat and
consoles combined

kugelgelagerter
Drehkranz
ball bearing rotating system

um 30° umsetzbare Anschläge
(Drehwinkel max 270°)
rot stoppers 30° steps available
(rotation max 270°)

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

Standardfarbe: lichtgrau
standard paint: light grey

Schwingsitz S210Y
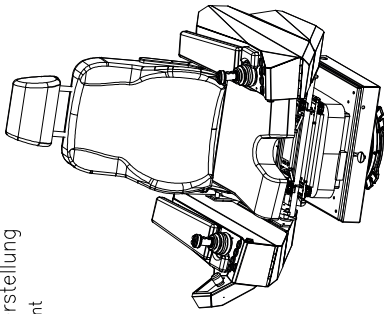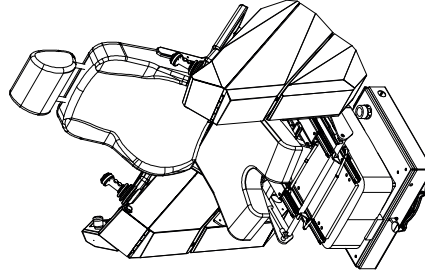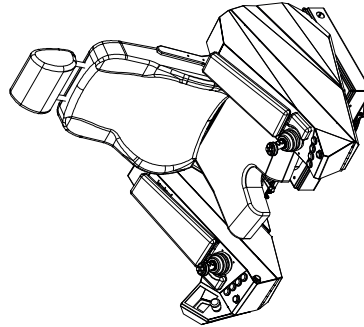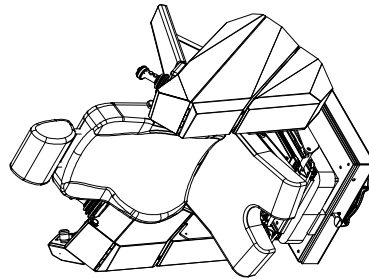**siehe Blatt Si-S210YC–1/2, –2/2**
seat S210Y
see sheet Si-S210YC–1/2, –2/2

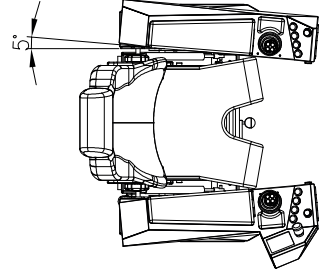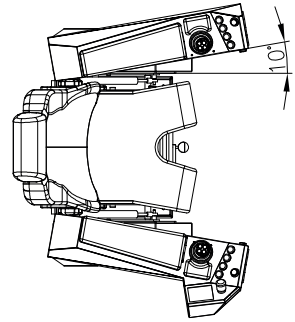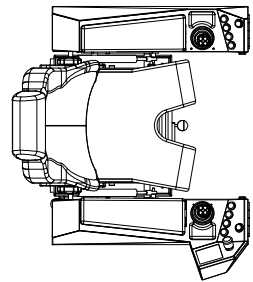Mech. Rückenlehnenverstellung
mech. backrest adjustment
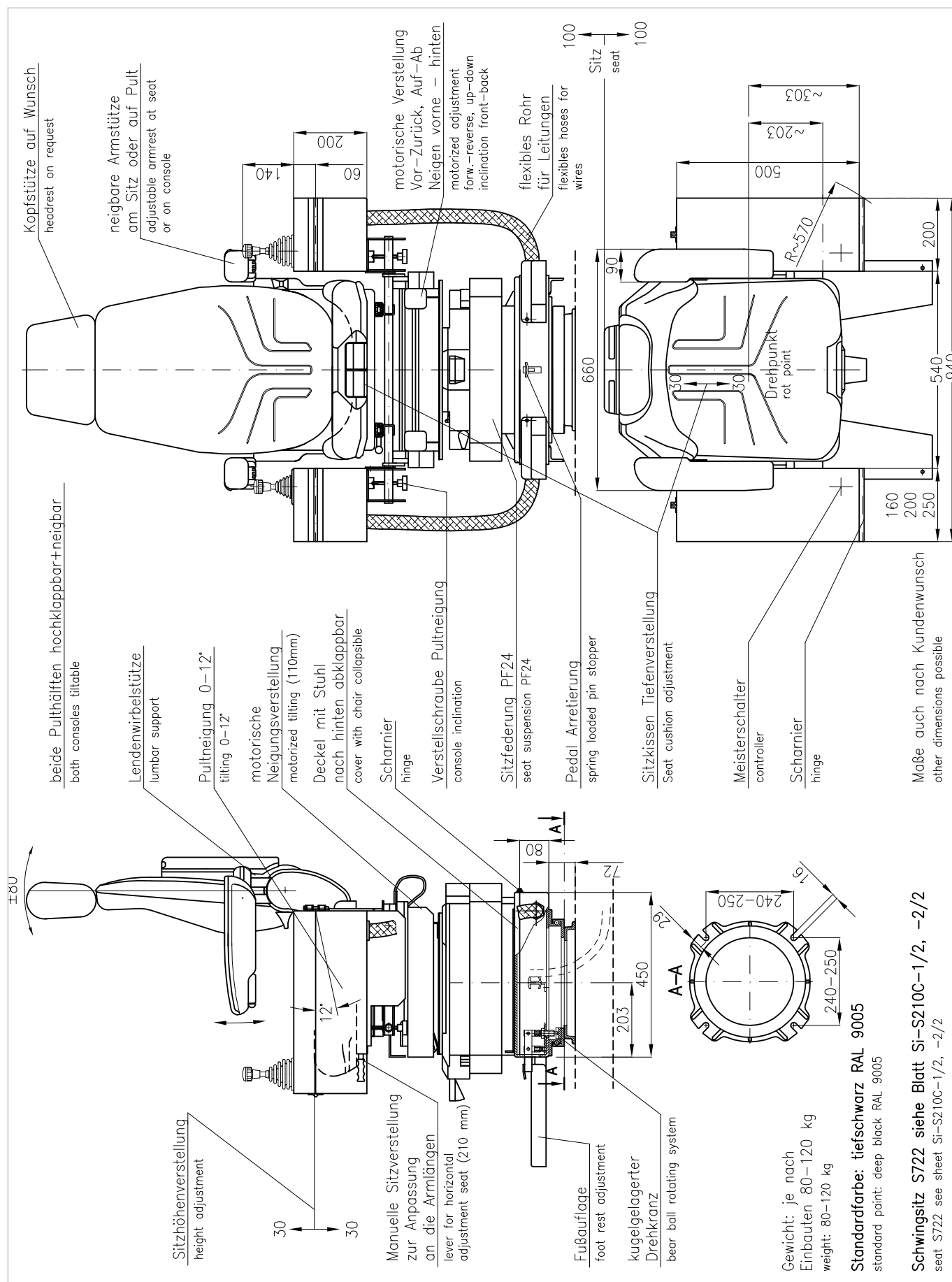
Mech. Kopfstützenverstellung
mech. headrest adjustment

beide Pulthälften
hochklappbar + neigbar
each console turnable upwards and tiltable
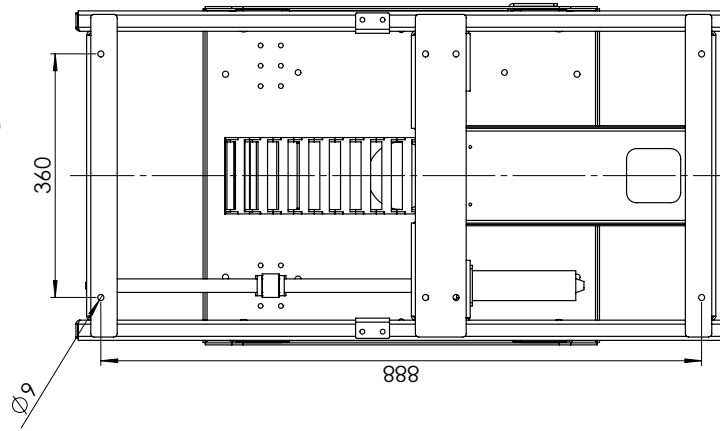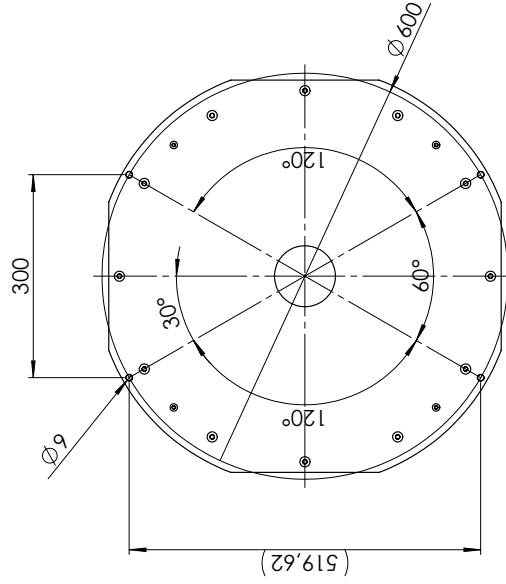
Pulte manuell schwenkbar
consoles rotatable manually

5°

10°

01.03.2020

TI-FSM

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Rotating unit, seat and consoles motorized combined
adjustable, with suspension and footrest

TI-FSM

Kopfstütze auf Wunsch
headrest on request

neigbare Armstütze
am Sitz oder auf Pult
adjustable armrest at seat
or on console

motorische Verstellung
Vor–Zurück, Auf–Ab
Neigen vorne – hinten
motorized adjustment
forw.–reverse, up–down
inclination front–back

flexibles Rohr
für Leitungen
flexibles hoses for
wires

Sitz
seat

100   100

Drehpunkt
rot point

beide Pulthälften hochklappbar+neigbar
both consoles tiltable

Lendenwirbelstütze
lumbar support

Pultneigung 0–12°
tilting 0–12°

motorische
Neigungsverstellung
motorized tilting (110mm)

Deckel mit Stuhl
nach hinten abklappbar
cover with chair collapsible

Scharnier
hinge

Verstellschraube Pultneigung
console inclination

Sitzfederung PF24
seat suspension PF24

Pedal Arretierung
spring loaded pin stopper

Sitzkissen Tiefenverstellung
Seat cushion adjustment

Meisterschalter
controller

Scharnier
hinge

Maße auch nach Kundenwunsch
other dimensions possible

Sitzhöhenverstellung
height adjustment

30   30

Manuelle Sitzverstellung
zur Anpassung
an die Armlängen
lever for horizontal
adjustment seat (210 mm)

Fußauflage
foot rest adjustment

kugelgelagerter
Drehkranz
bear ball rotating system

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

Standardfarbe: tiefschwarz RAL 9005
standard paint: deep black RAL 9005

Schwingsitz S722 siehe Blatt Si–S210C–1/2, –2/2
seat S722 see sheet Si–S210C–1/2, –2/2

±80°

12°

A–A

240–250

80

72

62

450

203

200   140

60

90

660

~303

~203

500

R~570

200

540
940

160
200
250

30   30

240–250

16

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Maßblatt Steuerstand FSMMD
Dimension sheet control station FSMMD

TI-FSMMD-1/4

TI-FSMMD-1/4

Darstellung zeigt Grundausführung mit zusätzlichen An-/Einbauten (Optionen)
overview about basic konfiguration with additional add ons and inbuildings (option)

Folgende Sitze können hier verwendet werden:
S722 mit mechanischer Rückenlehne
S210/S210Y mit elektrischer Rückenlehne
seats that can be used:
S722 with mechanical back rest
S210/S210Y with electrical back rest

min 180/ max 330
manuell

min 1099/max 1199
[1249/1349]

min -15°/max 16°

min 408/max 602

1225

340

+-111°

112

min 205/max 346

∅ 1530

∅ 2055

4.5°

Gewicht je nach
Einbauten 200-250 kg
weight depends from
the inbuildings 200-250 kg

Maximale Sitzbelastung 150kg
max seat load 150kg

Spannungsversorgung:
Gleichspannung 24V / 20A
powersupply:
DC 24V / 20A

min 447/max 531

850

138

min -7°/max 24°

min 4°/max 6.5°
manuell

min -14°/max 45°

min -14°/max +10°

01.03.2020

TI-FSMMD-2/4

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Maßblatt Steuerstand FSMMD
Dimension sheet control station FSMMD

TI-FSMMD-2/4

Montagebohrungen (mounting holes)

elektrischer Drehkranz (±120°)
(motorized swing bearing)

Ø600

120°

30°

60°

120°

300

Ø9

(519,62)

Für die Montage M8 (8.8)Schrauben mit einem Anziehdrehmoment von 24Nm verwenden
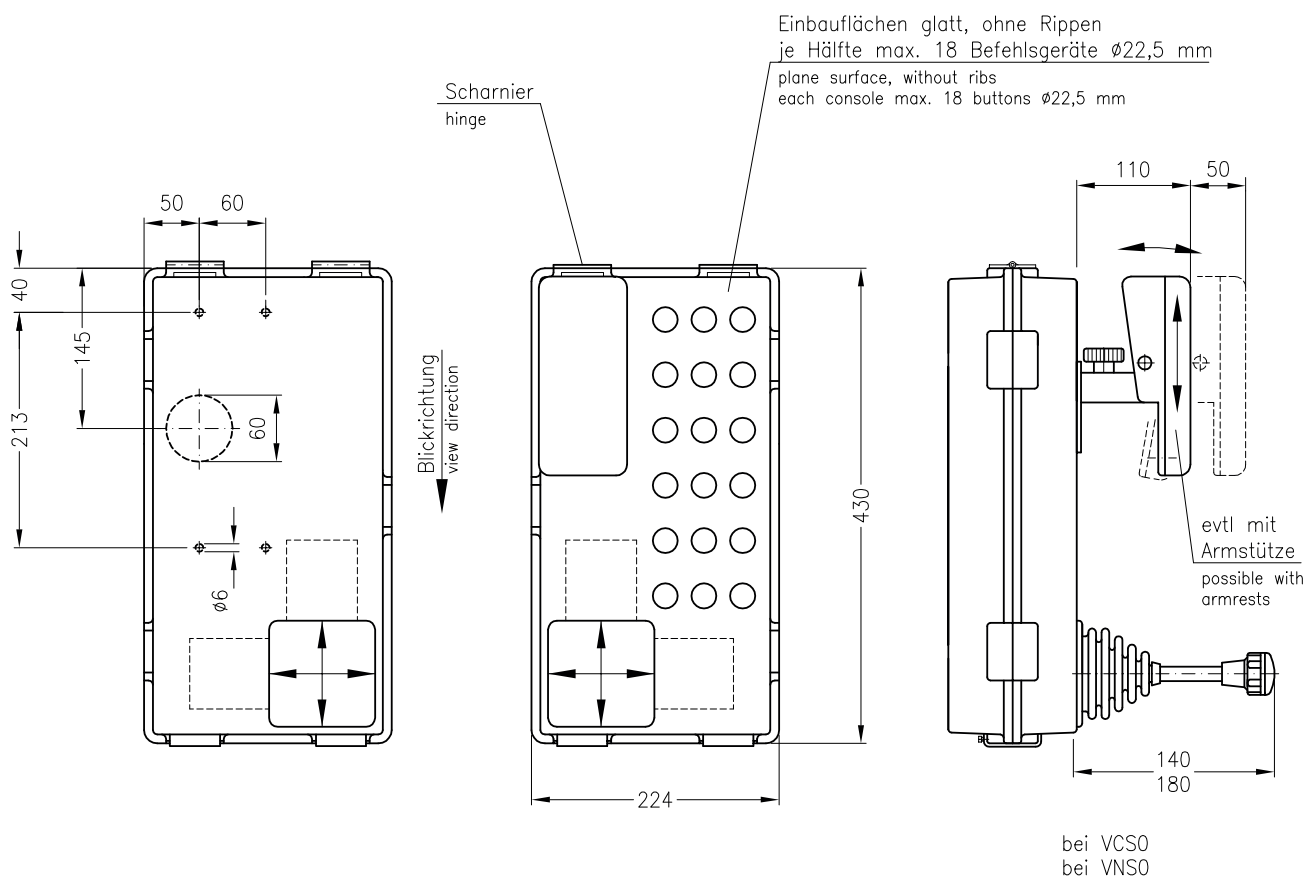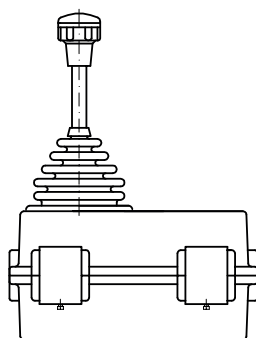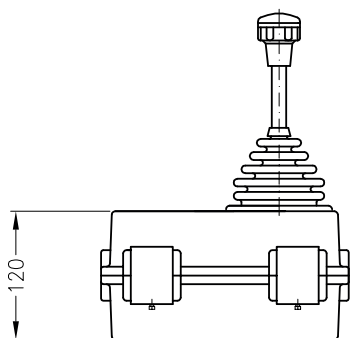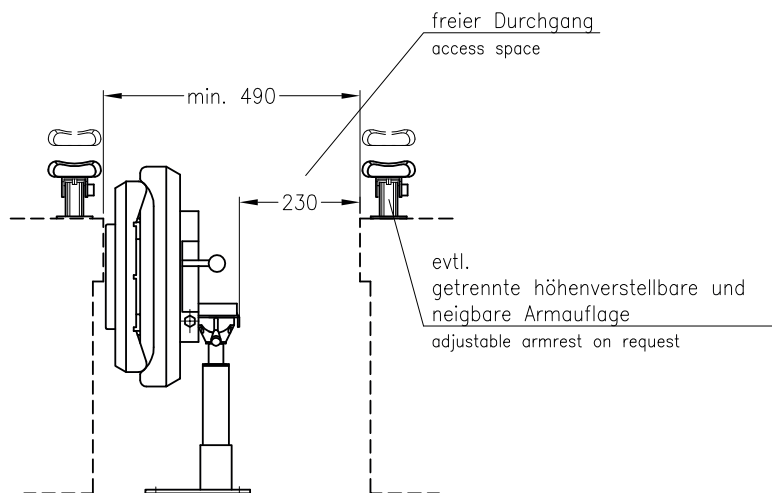(for mounting use M8 (8.8) screws with torque of 24Nm)

Rev

elektrischer Verfahrschlitten (+-200mm)
(motorized sliding system)

Ø9

360

888

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

TI-FSMMD-3/4

Maßblatt Steuerstand FSMMD
Dimension sheet control station FSMMD

TI-FSMMD-3/4

Stehende Bedienung
standing operation

Übersicht über Monitoranbaumöglichkeiten
overview about possibilities to mount a display

ANSICHT A
MAßSTAB 1 : 10

345
68,55
377

301
292
267

340,20

58,70
163

302
362
319,60
225,60

01.03.2020

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Maßblatt Steuerstand FSMMD
Dimension sheet control station FSMMD

TI-FSMMD-4/4

TI-FSMMD-4/4

Wipptasten für elektr.
Verstellmöglichkeiten
*rockerswitches for
electrical adjustments*

Bedieneinheit
Memorysteuerung
*touch panel for
memory system*

202

234,3

292

212

13,30

89

62

27

181,7

132

283

362,6

Rechteckige Iso—Pulte IP54
normal grau, auf Wunsch gelb oder schwarz antistatisch.
rectangular fiberglass console IP 54
normally grey, on request yellow or black surface$<10^9$ Ohm

NS0PKU—
rechts
right

NS0PKN—
links
left

120

Einbauflächen glatt, ohne Rippen
je Hälfte max. 18 Befehlsgeräte $\varnothing$22,5 mm
plane surface, without ribs
each console max. 18 buttons $\varnothing$22,5 mm

Scharnier
hinge

50   60

40

145

213

$\varnothing$60

$\varnothing$6

Blickrichtung
view direction

430

224

110   50

evtl mit
Armstütze
possible with
armrests

140
180

bei VCS0
bei VNS0

auf Wunsch andere oder
ohne Befestigungsbohrungen
on request other or without
fixing holes

freier Durchgang
access space

min. 490

230

evtl.
getrennte höhenverstellbare und
neigbare Armauflage
adjustable armrest on request
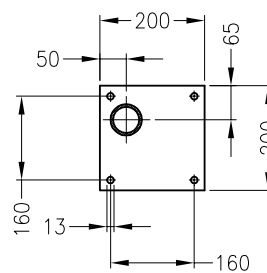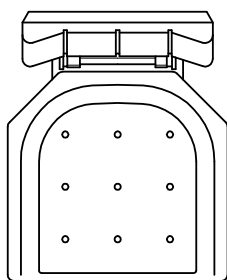
Typ Type	Ausführung Description
KSGF	mit verschleissfester Polsterung aus Integralschaum Sitzfläche zusätzlich mit Filzeinlage with hard wearing vinyl upholstering, seat with felt insert gefedert with suspension
KSPGF	Sitzpolster mit auswechselbarem Sitzbezug removable cotton cover gefedert with suspension

Gewicht ~23 kg
weight ~23 kg

Hebel für stufenlose
Rückenlehnenverstellung
back tilt adjustment

Hebel für Sitzverschiebung
pos. adjustment

Hebel für Höhenverstellung
height adjustment

45   200

150   110   max. 1000   450

160   50   200

Befestigungsbohrungen
fixing holes

200   65   50   200   160   13   160

freier Durchgang
access space

min. 490

230

evtl.
getrennte höhenverstellbare und
neigbare Armauflage
adjustable armrest on request

Typ Type	Ausführung Description
KSGF	mit verschleissfester Polsterung aus Integralschaum Sitzfläche zusätzlich mit Filzeinlage with hard wearing vinyl upholstering, seat with felt insert gefedert with suspension
KSPGF	Sitzpolster mit auswechselbarem Sitzbezug removable cotton cover gefedert with suspension

Gewicht ~23 kg
weight ~23 kg

Hebel für stufenlose
Rückenlehnenverstellung
back tilt adjustment

Hebel für Sitzverschiebung
pos. adjustment

Hebel für Höhenverstellung
height adjustment

45   200

150   110   max. 1000

450

160
50
200

Befestigungsbohrungen
fixing holes

200   65

50

200

160   13

160

Typ **TC011**
type
Material: PA66 gelb
material: PA66 yellow

Einbaumöglichkeiten:
2 Verbundmeisterschalter VCS0
mit Rastung oder Selbstrückgang
1−0−1 bis 6−0−6 Stellungen
+ Schloß−Schlagtaste, Normaltaste,
Meldelampe. (insges. 8 Einheiten)
Schaltungen nach TI−S−5

Installations:
2 two−axis controllers VCS0
with stayput or spring return
1−0−1 or 6−0−6 positions
+ emergency push button with key, pushbuttons,
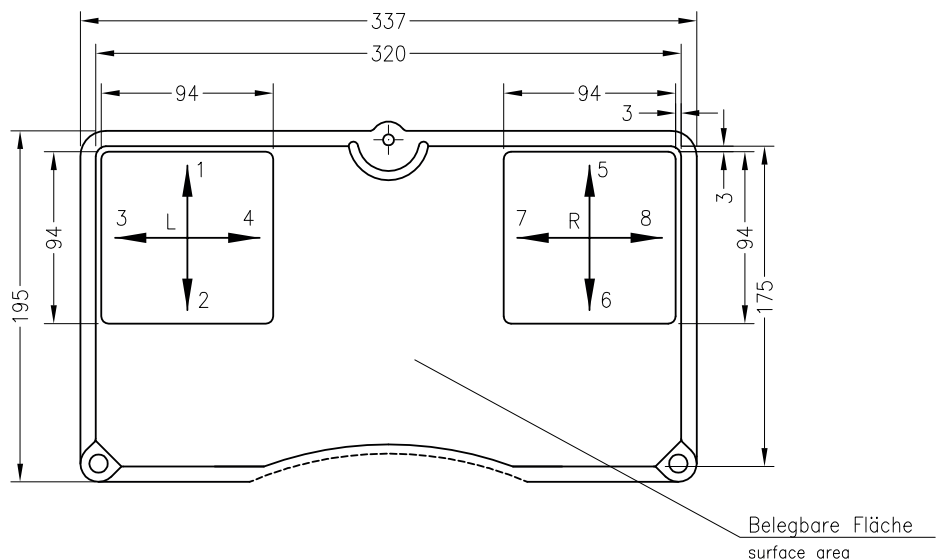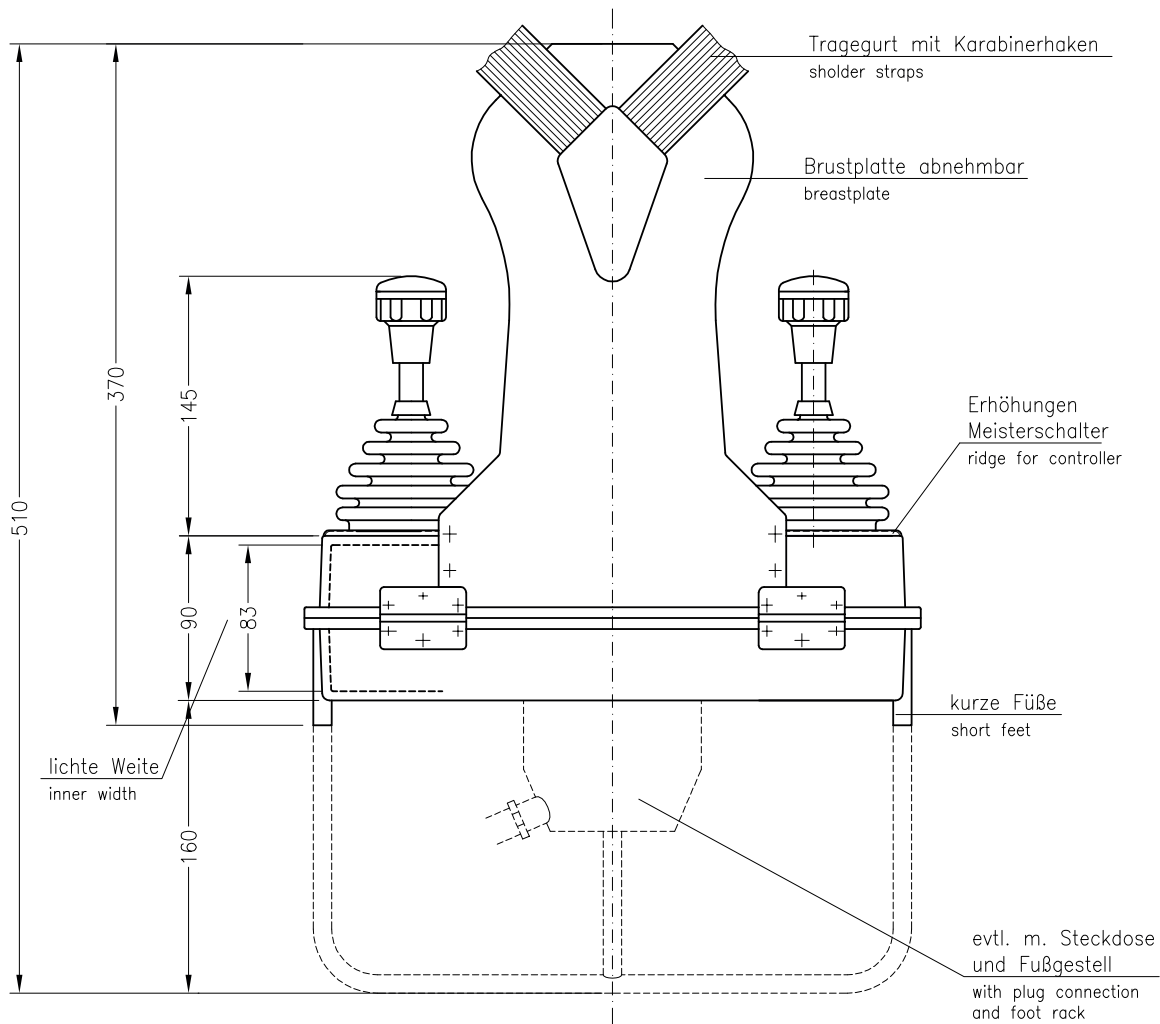lamps (up to 8 units)
circuit see TI−S−5

mit beweglicher
Kabeleinführung
turnable cable inlet

Drehbereich 180°
turning angle 180°

M32x1,5 Dichtbereich
∅13,5 − 20 mm
for cables
from ∅13,5−20 mm
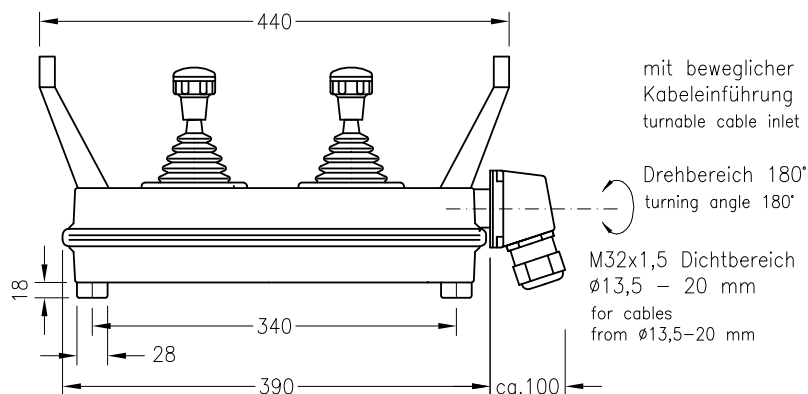
belegbare Fläche 315x125 mm
lichte Tiefe 75 mm
Deckel glatt
usable dimensions 315x125 mm
depth 75 mm
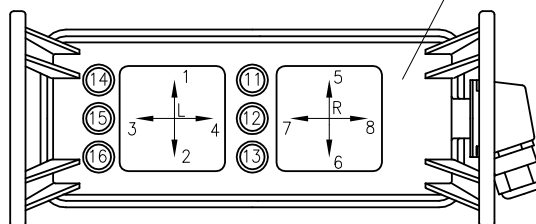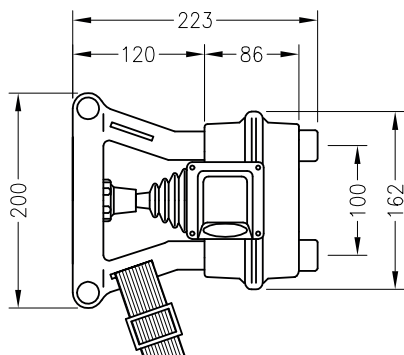
Typ type   **IDV—CS065**   mit Meisterschalter VCSO,   with controller VCSO
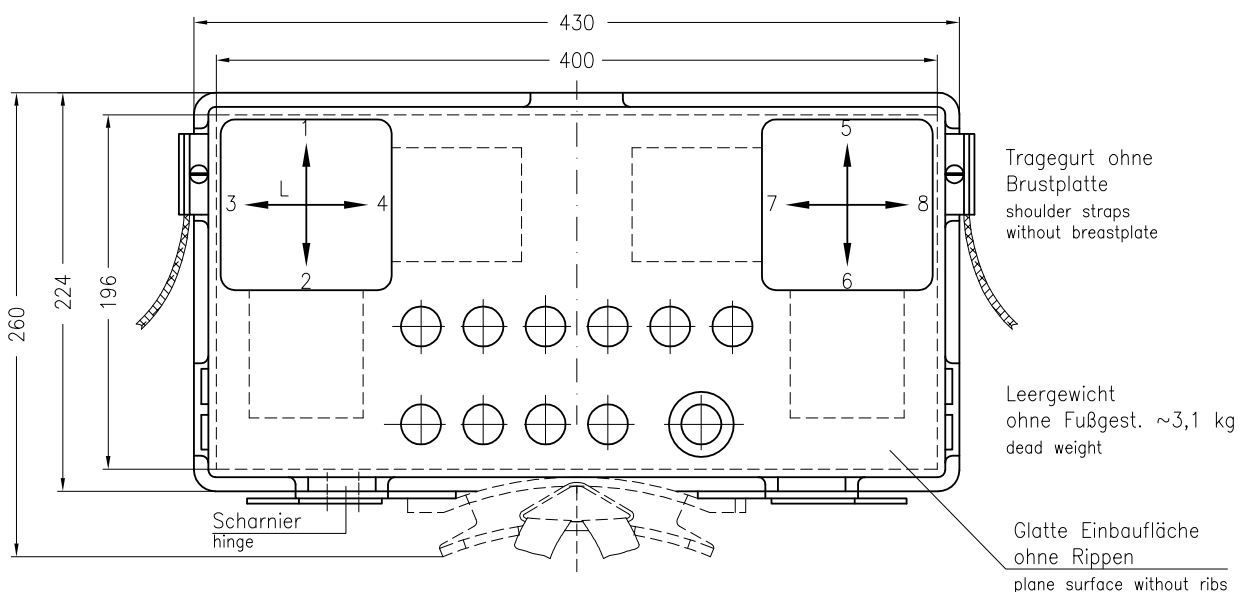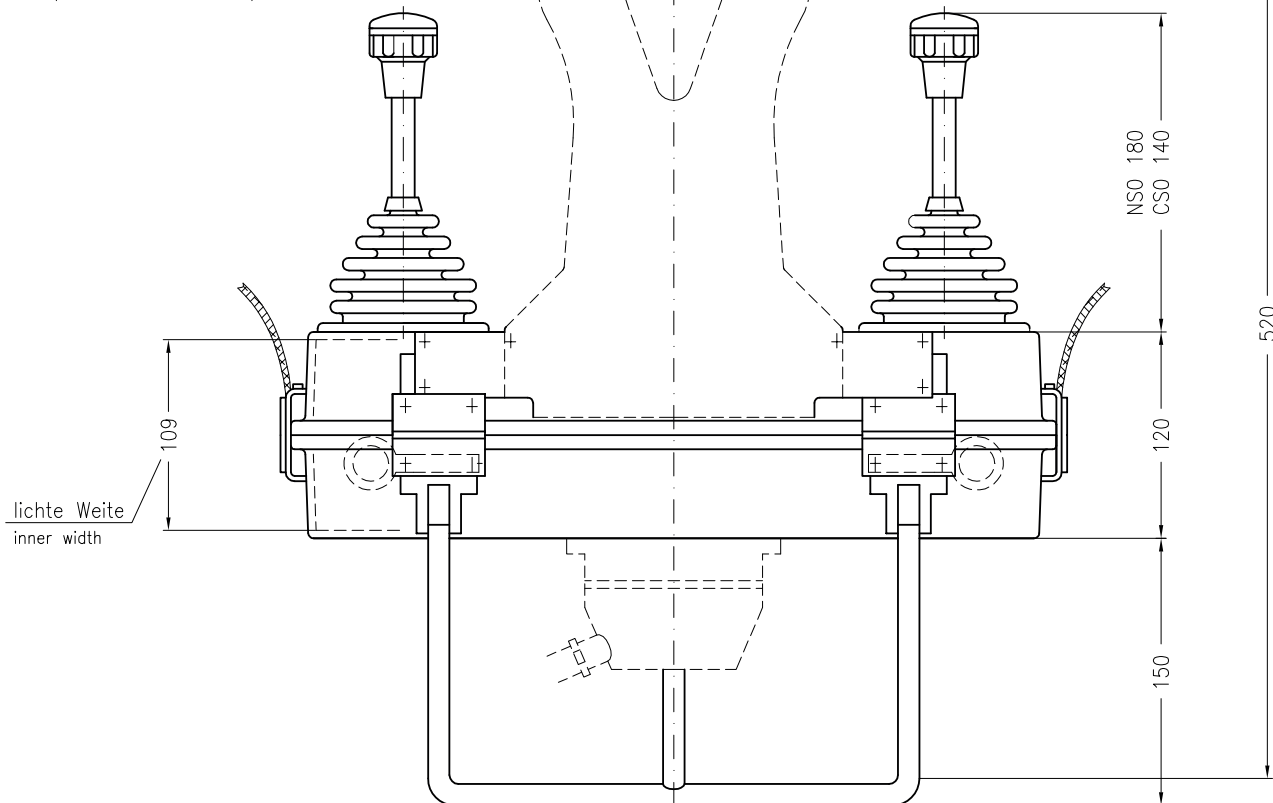Typ type   **IDV—NS33**   mit Meisterschalter VNSO,   with controller VNSO

Material: GFK gelb, Schutzart IP65
material: GFK yellow, degrees of protection IP65

Tragegurt mit Karabinerhaken
sholder straps

Brustplatte abnehmbar
breastplate

Erhöhungen Meisterschalter
ridge for controller

kurze Füße
short feet

lichte Weite
inner width

evtl. m. Steckdose und Fußgestell
with plug connection and foot rack

Belegbare Fläche
surface area

Material: GFK gelb, Schutzart IP65
material: GFK yellow, degrees of protection IP65
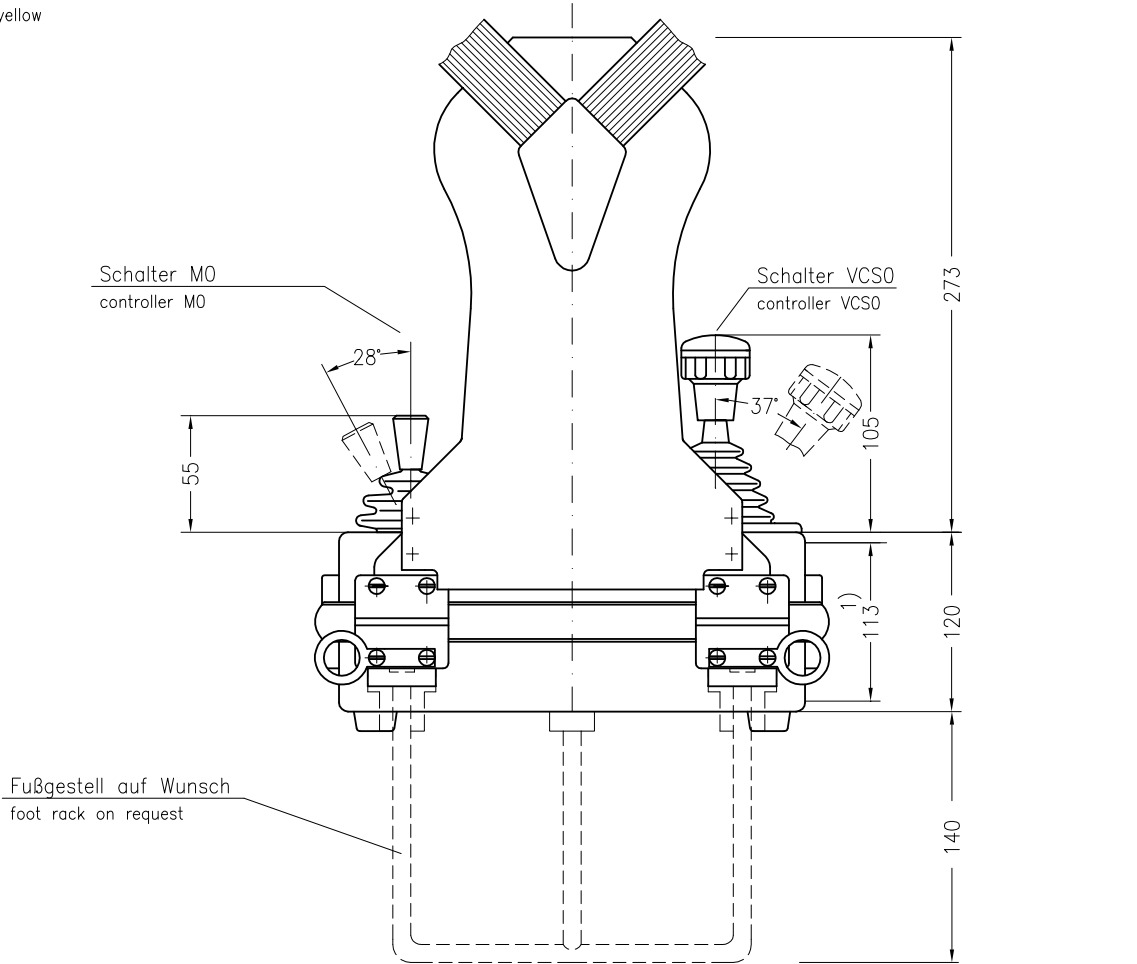
Ersatztype für IDV NS56R
alternative type for IDV NS56R

evtl. abschraubbare Brustplatte
mit Tragegurt und Gurtschieber
breastplate with shoulder straps

NS0 180
CS0 140

520

120

109

lichte Weite
inner width

150

430

400

260   224   196

3   L   4

2

5

7   8

6

Tragegurt ohne
Brustplatte
shoulder straps
without breastplate

Leergewicht
ohne Fußgest. ~3,1 kg
dead weight

Scharnier
hinge

Glatte Einbaufläche
ohne Rippen
plane surface without ribs

Typenschlüssel siehe TP-T-56
ordering example see TP-T-56

Typ type **TM022A**   mit Meisterschaltern M0,   with controllers M0
Typ type **TC022A**   mit Meisterschaltern VCS0, with controllers VCS0

Material: PA66 gelb
material: PA66 yellow

Schalter M0
controller M0

Schalter VCS0
controller VCS0

28°

37°

273

105

55

113

1)

120

Fußgestell auf Wunsch
foot rack on request

140

285

260

253 1)

Schalter M0
controller M0

1 L 4
3   4
2

5
R
7   8
6

Schalter VCS0
Rosette 72x72 mm
controller VCS0
plate 72x72 mm

195

164

1)

157

1) lichte Weite
1) inner width

evtl. Anbaudose
oder Kabelverschraubung
mit Knickschutz
plug connection
or cable entry
with antikink

Pilz−Schlagtaste
mushroom push button

Gewicht: ~ 3 kg
weight: ~ 3 kg

Typ   **HC 011**
type
Material: PA66 gelb
material: PA66 yellow

Einbaumöglichkeiten:
2 Verbundmeisterschalter VCS0
10 A mit Rastung und Selbstrückgang
1−0−1 bis 6−0−6 Stellungen
Schaltungen nach TI−S−3, TI−S−5
+ Schloß−Schlagtaste, Normaltasten und
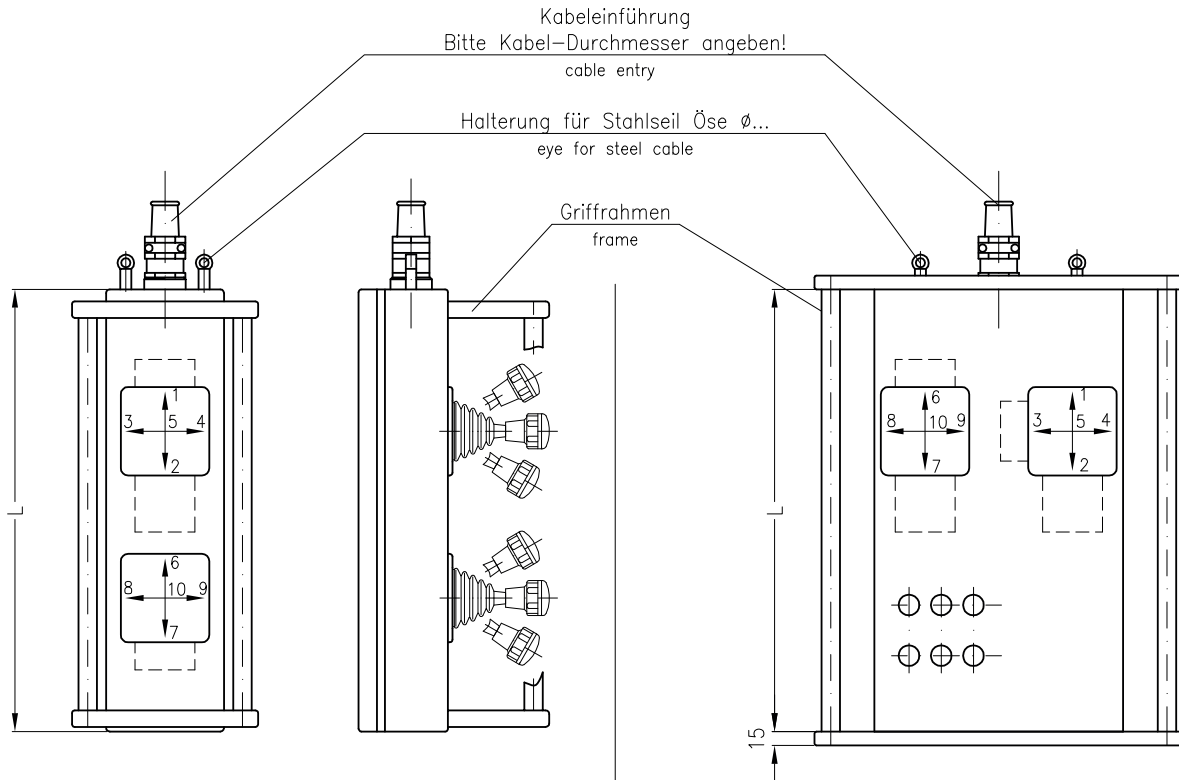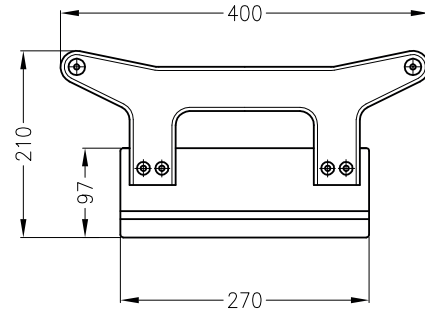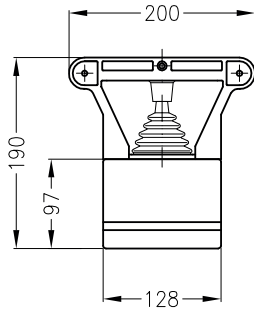Meldelampen (insgesamt 8 Einheiten)

Installations:
2 two axis controllers VCS0
10 A with stayput or spring return
1−0−1 to 6−0−6 positions
circuit see TI−S−3, TI−S−5
+ emergency push button, push buttons,
lamps (up to 8 units)

Belegbare Fläche 315x125 mm,
lichte Tiefe 70 mm,
Deckel eben
surface area 315x125 mm,
depth 70 mm
cover plane

Kabeleinführung Pg 21, Pg 29
Kabel max. ∅24 mm
cable entry Pg 21, Pg 29
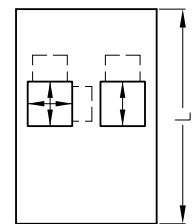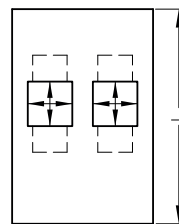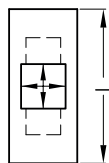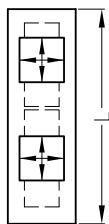for cable max. ∅24 mm

Spohn+Burkhardt
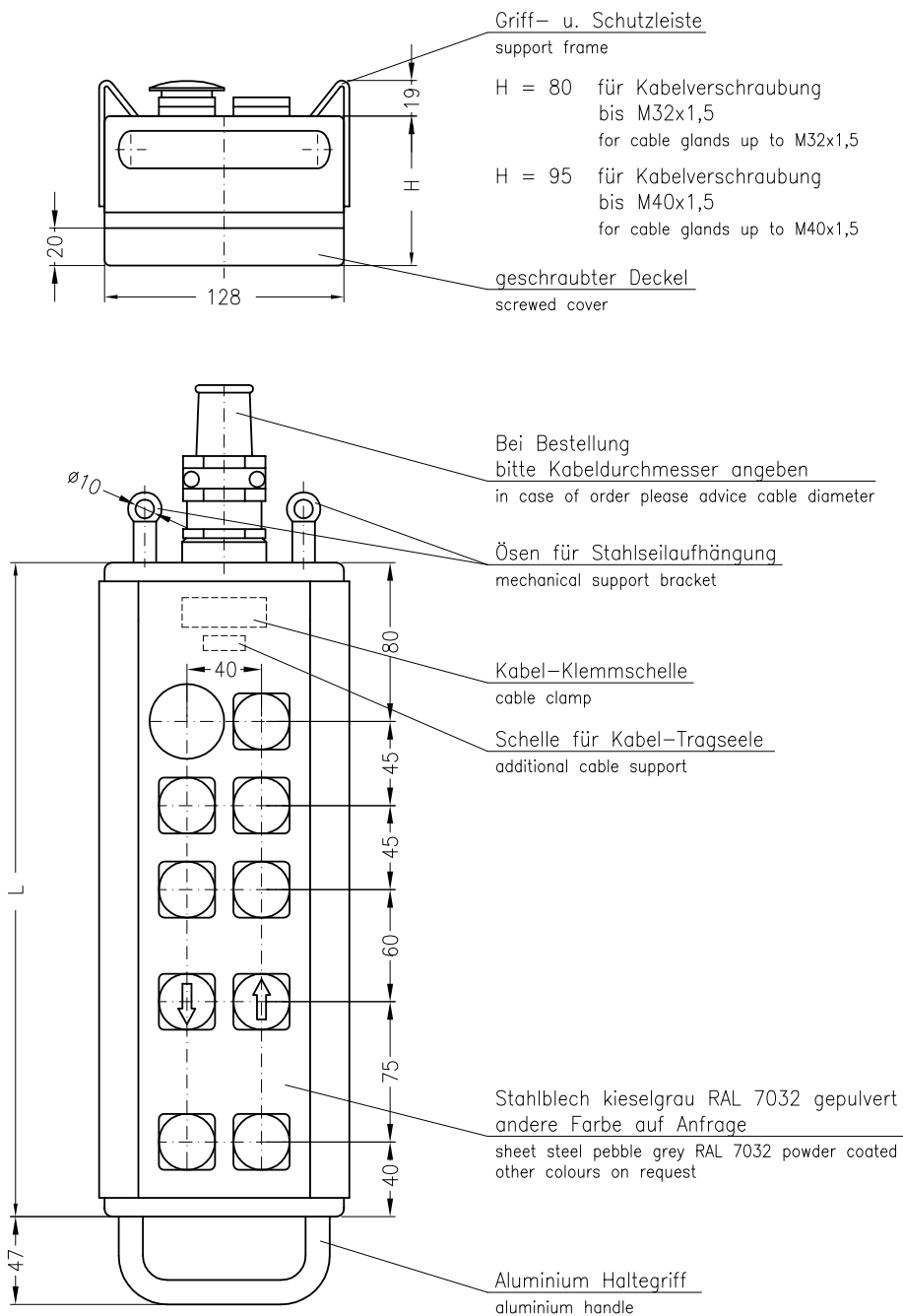### Elektrotechnische Fabrik Blaubeuren
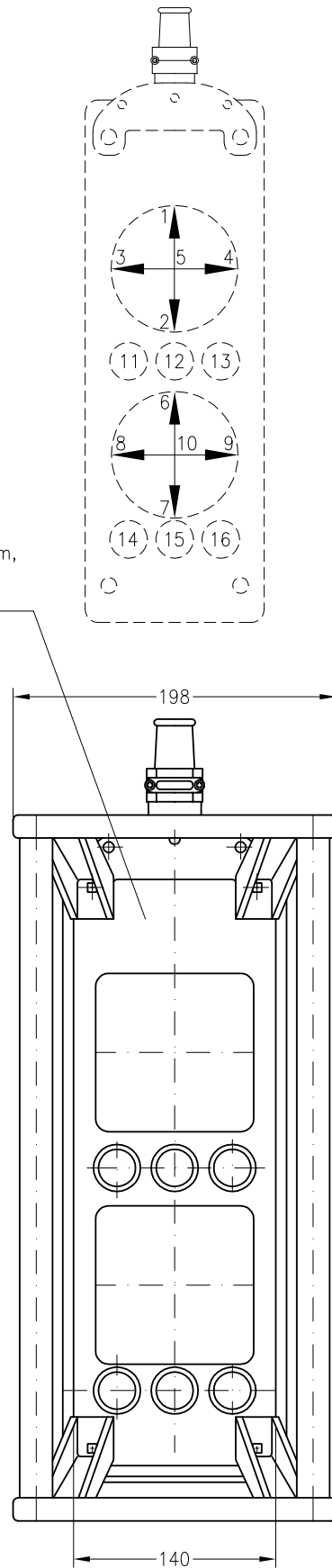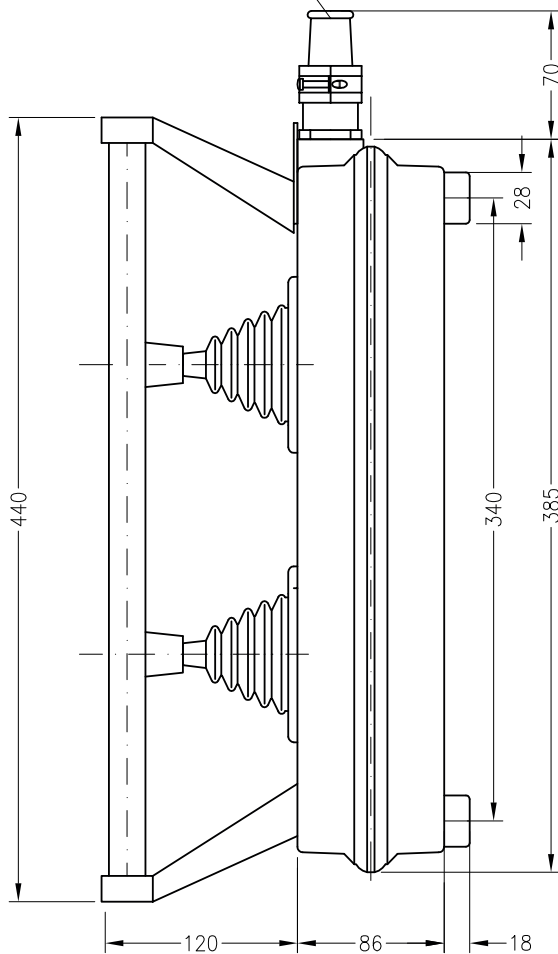
Ausführung: Standard IP54, auf Anfrage IP65

200
190
97
128

400
210
97
270

Kabeleinführung
Bitte Kabel–Durchmesser angeben!
cable entry

Halterung für Stahlseil Öse ø...
eye for steel cable

Griffrahmen
frame

Typ type	L/mm
HV29	290
HV35	350
HV48	480
HV60	600
HV70	700

Typ type	L/mm
HBV35	350
HBV48	480
HBV60	600
HBV70	700

Einbaubeispiele
Installations

Andere Anordungen und Größe auf Wunsch
on request other dimensions and arrangements available

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Griff– u. Schutzleiste
support frame

H = 80   für Kabelverschraubung
bis M32x1,5
for cable glands up to M32x1,5

H = 95   für Kabelverschraubung
bis M40x1,5
for cable glands up to M40x1,5

geschraubter Deckel
screwed cover

19

H

20

128

Ø10

Bei Bestellung
bitte Kabeldurchmesser angeben
in case of order please advice cable diameter

Ösen für Stahlseilaufhängung
mechanical support bracket

Kabel–Klemmschelle
cable clamp

Schelle für Kabel–Tragseele
additional cable support

Stahlblech kieselgrau RAL 7032 gepulvert
andere Farbe auf Anfrage
sheet steel pebble grey RAL 7032 powder coated
other colours on request

Aluminium Haltegriff
aluminium handle

40

80

45

45

60

75

40

L

47

Baugröße type	L / mm Maß dimension	Mögliche Anzahl Befehlsgeräte Ø22,5 mm number of control devices	Gewicht ~kg weight ~ kg
HD19	190	6	1,8
HD29	290	10	2,5
HD35	350	12	4,0
HD48	480	18	5,0
HD60	600	22	6,0

andere Größen auf Anfrage
other sizes on request

Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Mit flachem Deckel **Od22-**
With flat cover Od22-

max.76,5°
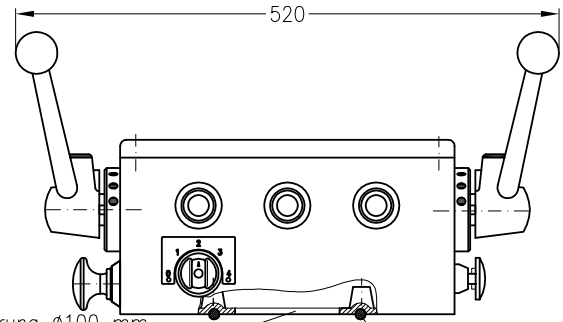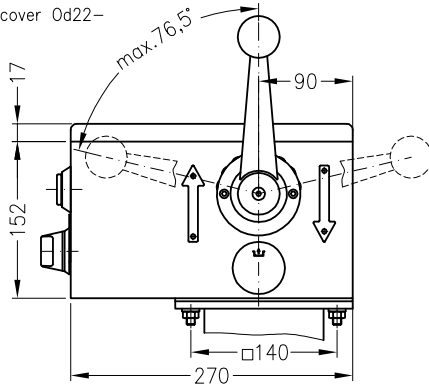
Auf Wunsch
Od22 B
Mit Kabeleinführung ⌀100 mm
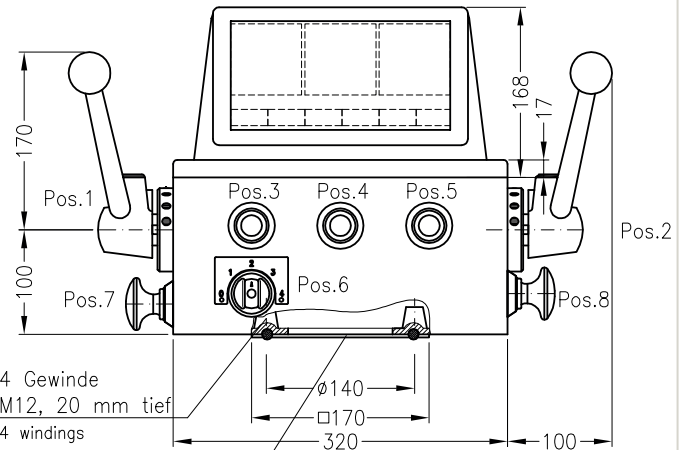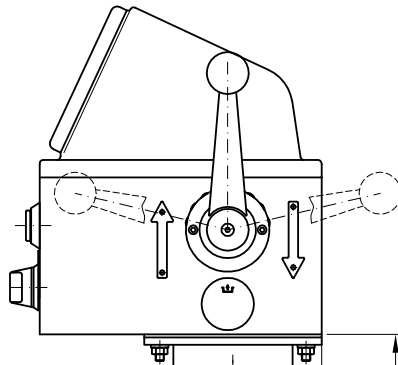durch den Boden
On request
Od22 B with cable entry on base

Gewicht ~12 kg
Weight ~12 kg

Dichtungsgummi
Sealing

Mit Meßinstrumentenaufsatz **Od22-J-**
Maximale Einbaumöglichkeit: 3 Meßinstrumente 72x72 mm und 6 Meldelampen 36x24 mm
Upper part for instruments type Od22-J-
Maximal installation: 3 instruments 72x72 mm and 6 lamps 36x24 mm

Pos.1
Pos.2
Pos.3   Pos.4   Pos.5
Pos.6
Pos.7
Pos.8

4 Gewinde
M12, 20 mm tief
4 windings

Auf Wunsch
Od22 B-J-
Mit Kabeleinführung ⌀100 mm
durch den Boden
On request
OD22 B-J- with cable entry on base

Gewicht mit Meß-
instrumentenaufsatz~14 kg
Weight with upper part ~14 kg

Auf Wunsch
Standrohr mit
Rechteckflansch
On request
pillar with
flange squared
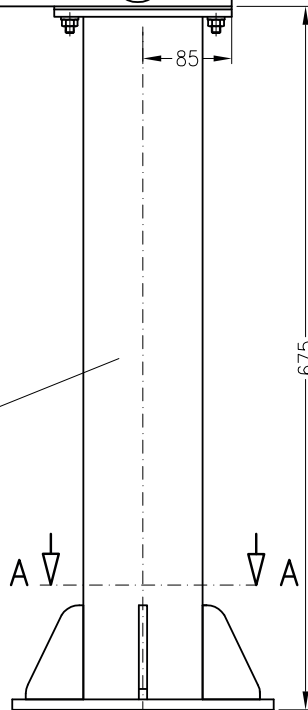
Auf Wunsch
Standrohr mit
Rundflansch
NW100 DIN 2633
On request
pillar with
flange round

A▽   ▽A

B▽   ▽B
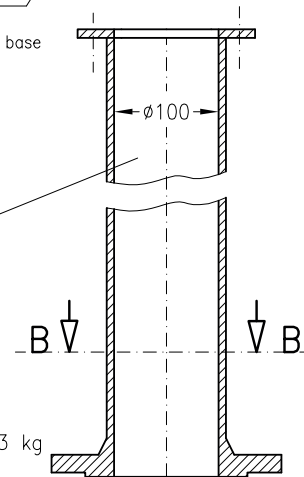
Gewicht Standrohre je ~13 kg
Weight pillars per ~13 kg

Standardfarbe: RAL 7032
standard paint: RAL 7032

A-A

B-B