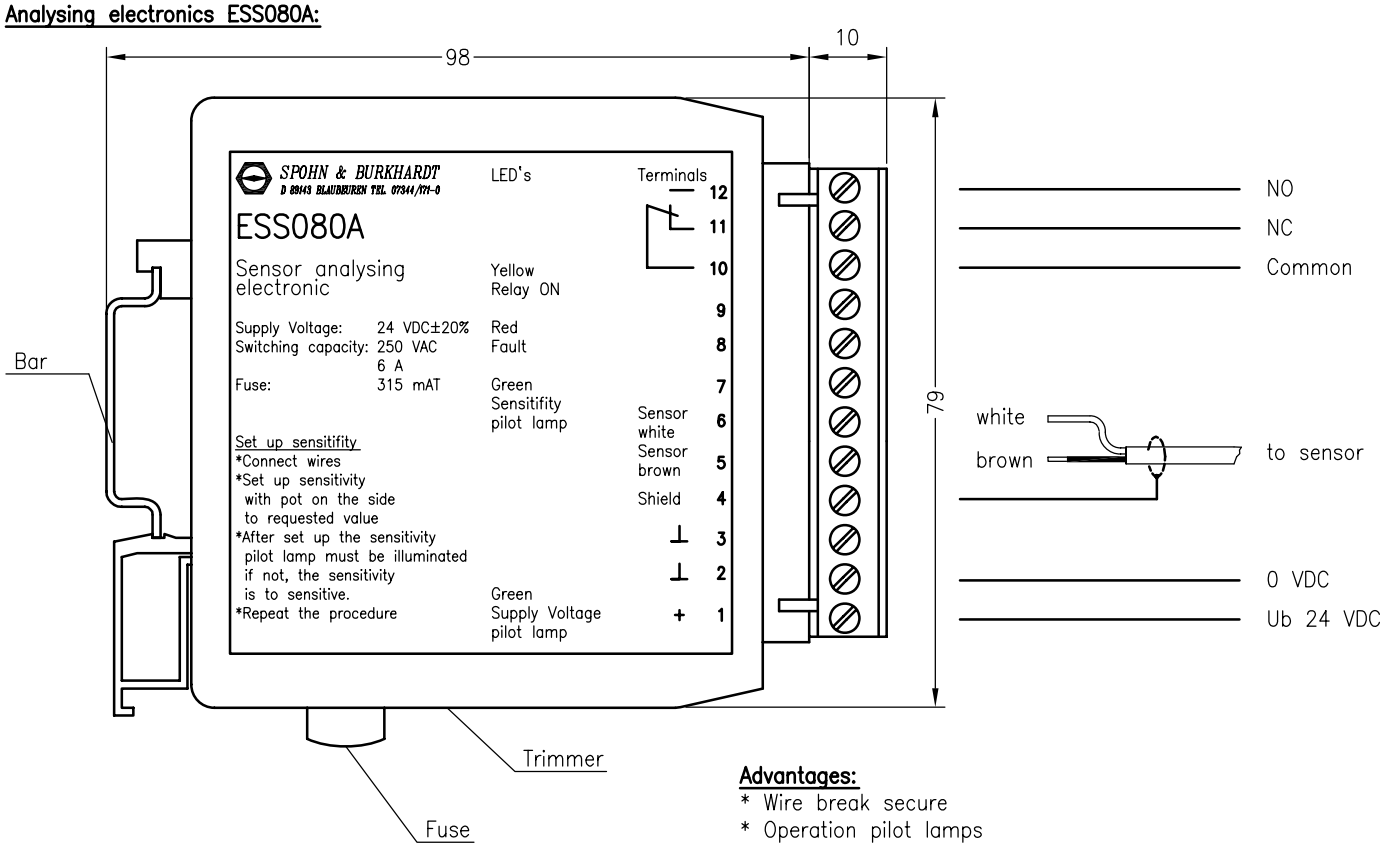
Description

The sensor equipment ESS080 works on capacitive principle.
When approaching hand to sensor frequency changes and switches on output relay.

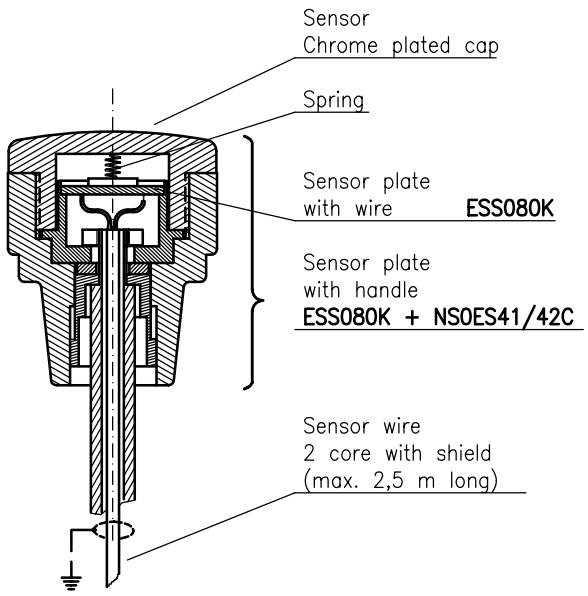
Analysing electronics ESS080A:



Advantages:

* Wire break secure
* Operation pilot lamps
* High sensitivity
* Potential free relay output with high current output
* Fast connecting with 12 pin plug
* Easy to install onto bar

Example:
Installation of sender in standard handle:



Technical data:

Supply Voltage:	24 VDC±20%	
Wire length:	max. 2,5 m	
Switching capacity:	250 VAC 6 A	
	24 VDC 2 A	
Temp. range:	−20 °C till +70 °C	
Input current:	ca. 50 mA	
Dimensions:	105x80x25 mm	
Weight:	110 g	
Protection:	IP20	
Fuse:	315 mAT	
EMV:	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	EN61000−4−6 (level 3)

Indication:
Operator has to observe requirements of data sheet.

EUR

Sensor plate	ESS080K (without handle)
Sensor plate for handle UG, UGN, UGD, G1	(e.g. ESS080K−UG)
Sensor plate with handle	ESS080K−NS0ES41/42C
Analysing electronic	ESS080A

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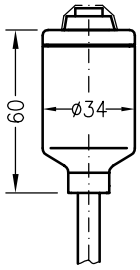
	Type	EUR

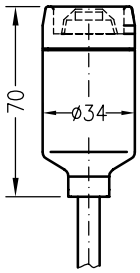


Handle with push button free and silicon cap,
push button tasted, 1 NO
Push button + silicon cap

DT
P9FSW + RBF

Switching capacity:
2 Amp. 24 VAC/DC degrees of protection IP54

Wiring through shaft



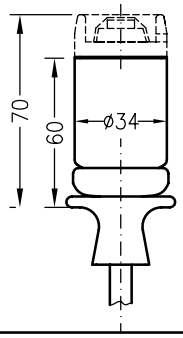
Handle with push button counter–sunk and silicon cap,
push button tasted, 1 NO
Push button + silicon cap

DTV
P9FSW + RBF

Switching capacity:
2 Amp. 24 VAC/DC degrees of protection IP54

Wiring through shaft

Photo:
DTVZ

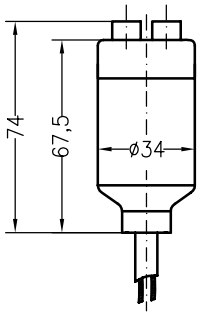


Handle with push button and silicon cap,
with mechanical interlock
Push button free, 1 NO
Push button counter–sunk, 1 NO
Push button + silicon cap

DTZ
DTVZ
P9FSW + RBF

Switching capacity:
2 Amp. 24 VAC/DC degrees of protection IP54

Wiring through shaft

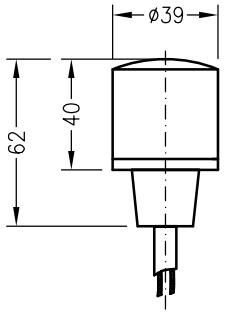


Handle with 2 push buttons,
each 1 NO

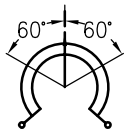
2 DT

Switching capacity:
1 Amp. 24 VAC/DC degrees of protection IP54

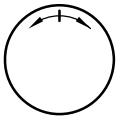
Wiring through shaft



Potentiometer 60°–0–60° with spring return to centre
Potentiometer model 357 conductive plastic 5 kOhm, 10 kOhm



ES 67



Other parts in handle see sheet 2/1... and 3/3
Additional sensor (sheet 3/1) on request

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Universal handles UG, UGN, UGD, dimensions see M 3/3 + M 3/3A

List 7 / 2006
3/3

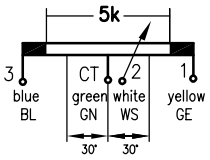
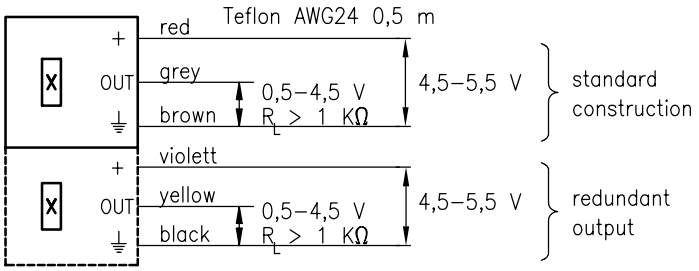
UG

UGN

UGD

UGD–G10

UGD–G12

Pos. *	Description	Type	EUR
	Universal handle with adapter for ST0, ST1 CS1, VCS0, VNS0, NNS0 and VNS2	**UG**	
	Universal handle with wrist rest with adapter for ST0, ST1, CS1, VCS0, VNS0, NNS0 and VNS2	**UGN**	
	Universal handle at protection IP56 with adapter for ST0, ST1, CS1, VCS0 and VNS0	**UGD**	
1, 2, 3, 4, 6R, 6L, 7R, 7L	Push button: 48 VAC–500 mA, 24 VDC–2 A, 1 NO contact green, yellow, white, red, black, blue, orange, grey, violett GN YE WH RD BK BL OG GY VT	**1.., 2.., 3.., 4.., 6R..,6L..,7L...,7R... (...colour)**	
5	Deadman: by UG, UGD: 1 change–over contact max. 24 VDC–2 A by UGN: 1 NO contact max. 24 VDC–2 A Sensor deadman see page 3/1	**T** **KT**	
7R, 7L	Rockerswitch stayput 0–1, 1838 1102 Rockerswitch stayput 1–0–1, 1838 1502 Rockerswitch with spring return 0–1, 1838 1202 Rockerswitch with spring return 1–0–1, T1522 VLAAA Rockerswitch one side spring return, 1838 1602 one side stay put 1–0–1, } IP40 silver–contacts	**W1S W2S W1T W2T W2TS**	
	Twist handle G10 with potentiometer G5, with spring return, move 30°–0–30° Note: 60° of potentiometers is used 	**G10**	
	Analog rocker switch  Amplifier see sheet 16/11 + 16/12	**G12A** **G12AA**	On request

Ordering example:

UG
UGN 8 1BK 2RD T G10
UGD 12

- G10 — Twist handle
- T — Deadman
- 2RD — Push button in pos. 2 red
- 1BK — Push button in pos. 1 black
- 8 — Adapter for 8 mm ST0, ST1, VCS0, CS1, VNS0
- 12 — Adapter for 12 mm NNS0, VNS2
- UG / UGN / UGD — Type

*Positions see sheet M 3/3 and M 3/3A
Other adapter on request

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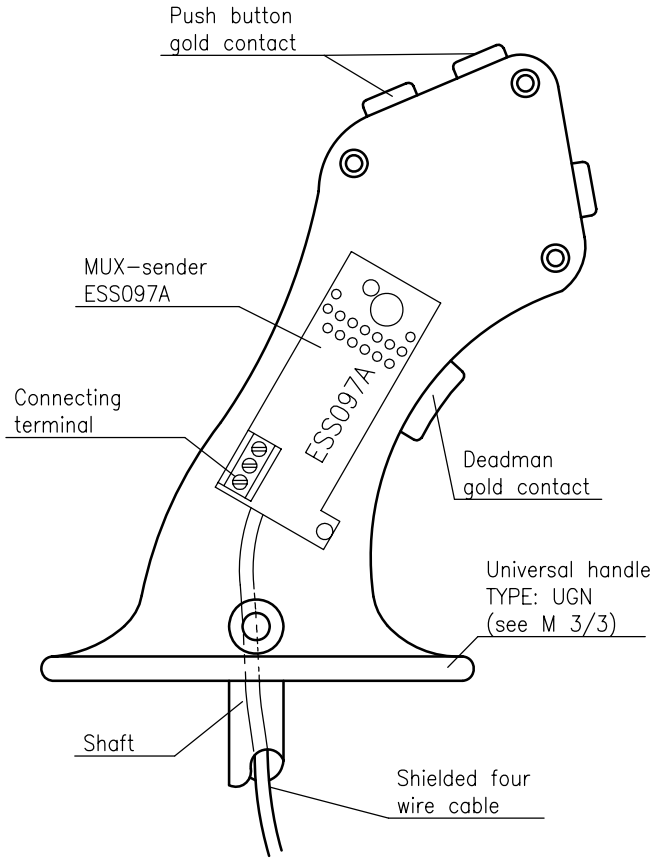
Multiplexer–system ESS097
for controller with handle UG, UGN, UGD

List 7 / 2006
3/4C

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



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:

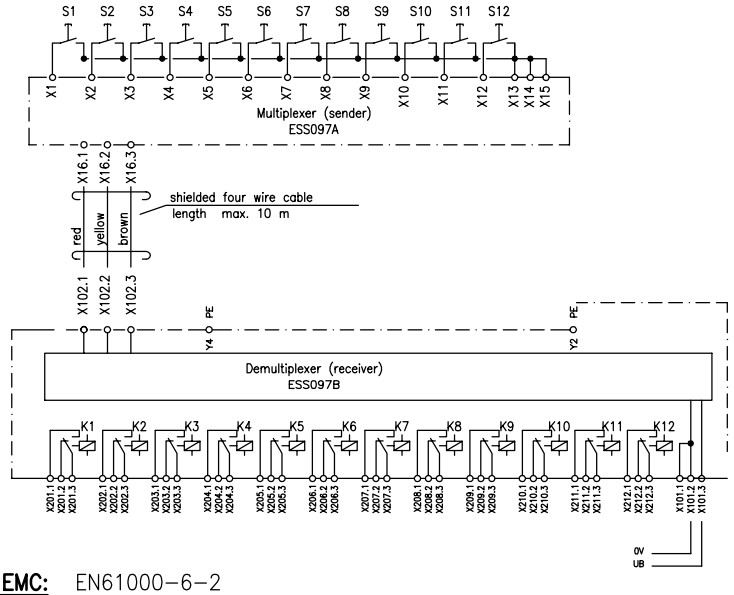
Mux–system is for serial transmission of non–security relevant state.

* 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

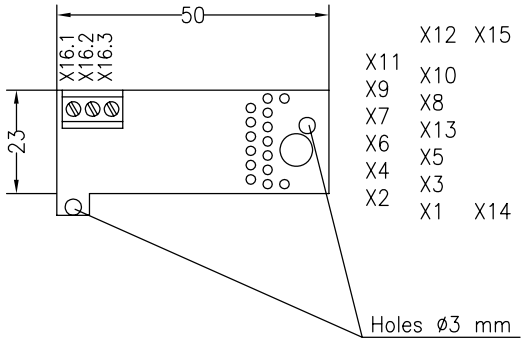
Scheme multiplexer–system:



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:



EMC: EN61000–6–2
EN55011:1998+A1:1999

Price:

MUX–system ESS097 **EUR**

Prices for handles see sheet 3/3

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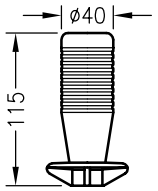
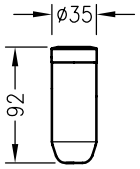
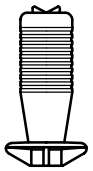
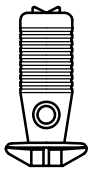
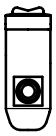
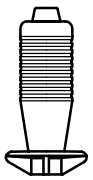
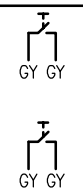
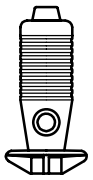
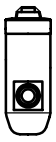
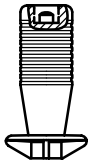
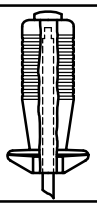
Palm–handle B, B1N, protection IP54
suitable for controller ST0, ST1, VCS0, CS1, VNS0

List 7 / 2006
3/5

Photo:
Type: BNS

Photo:
Type: B1NSWD

Description	Contacts		Type	EUR		Type	EUR
Without push buttons			**BNS**			**B1NS**	
Rocker switch			**BNSW**			**B1NSW**	
Rocker switch +push button in front			**BNSWD**			**B1NSWD**	
Push button free			**BNSD**			**B1NSD**	
Push button free +push button in front			**BNSDD**			**B1NSDD**	
Push button flush mounted			**BNSDV**				
Grip with push button for flexible rod for VNS0 handle 180 mm, for ST0, ST1, CS1			**BNSH**		Hand rest 	**B1–04A**	

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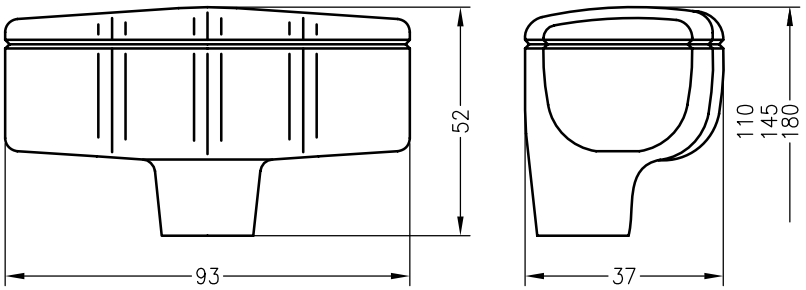
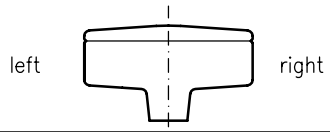
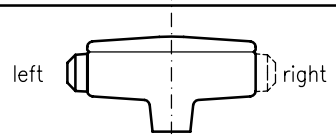
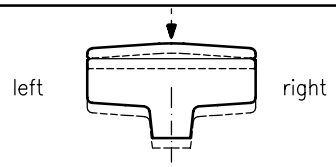
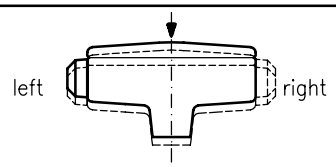
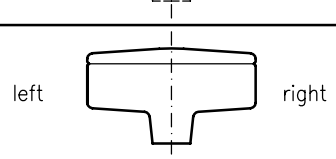
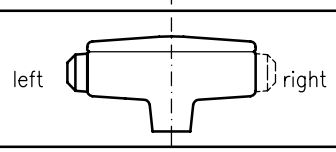
Handle G1 for controllers
ST0, ST1, VCS0, CS1, VNS0, NNS0, NS2, NS3

List 7 / 2006
3/6

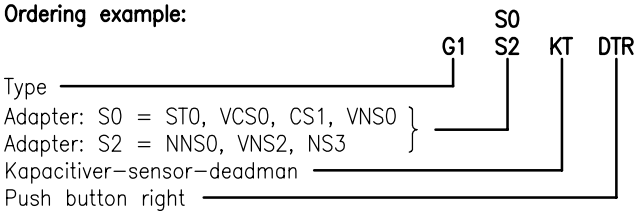
Photo:
G1–DTR



Contacts:
Push buttons 2 Amp. 30 VDC
Wiring max. 4x0,25 mm

	Type	Description	EUR
	**G1..**	Without inserts	
	**G1..DTR** **G1..DTRO** **G1..DTL** **G1..DTLO**	Push button right side 1NO Push button right side 1NC Push button left side 1NO Push button left side 1NC	
	**G1..TU**	Deadman operates while pressing down with flexible rod and contacts in base, not possible for ST0 and CS1 controller	
	**G1..TUDTR** **G1..TUDTRO** **G1..TUDTL** **G1..TUDTLO**	Deadman Operates while pressing down and push button on the right side or push button on the left side	
	**G1..KT**	Capacitiy–sensor–deadman ESS080 see page 3/1	
	**G1..KTDTR** **G1..KTDTRO** **G1..KTDTL** **G1..KTDTLO**	Capacitiy–sensor–deadman ESS080 and push button 1 NO or 1 NC on the right or on the left side see page 3/1	

Ordering example:



Other adapter on request.

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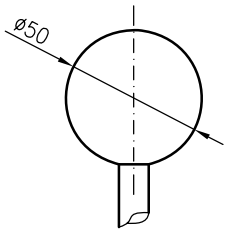
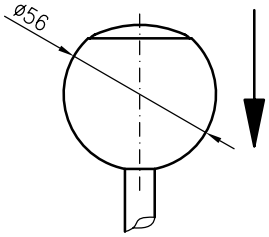
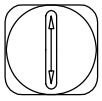
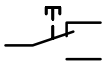
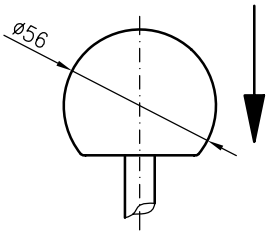
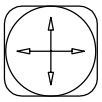
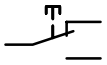
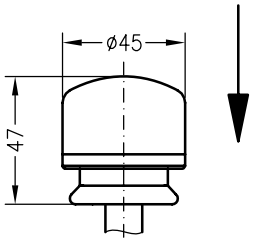
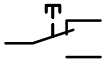
Version:	for controller type	Handle	EUR
 	VNS0 VCS0 CS1 ST0 ST1 VNS2 NS3 NNS0	K	
    Function: mechanical release by pushing down ball grip and shaft only feasible with slot–or cross gate	VNS0–SKA VNS0–SKE VNS0–SKG VNS0–KKV VNS0–KKEA VNS0–KKH NNS0–SKA NNS0–SKE NNS0–SKG NNS0–KKV NNS0–KKEA NNS0–KKH VNS2–SKA VNS2–SKE VNS2–SKG VNS2–KKV VNS2–KKEA VNS2–KKH	IKKZ IKKZU with electrical contacts 	
   Function: mechanical release by pushing down ball grip feasible for circular movements	VNS0–V VNS0–EA VNS0–H NNS0–V NNS0–EA NNS0–H VNS2–V VNS2–EA VNS2–H	IKZ IKZU with electrical contacts 	
  Function: mechanical release by pushing down handles.	VNS0 VCS0 VNS2 NNS0	IPZ IPZU with electrical contacts 	

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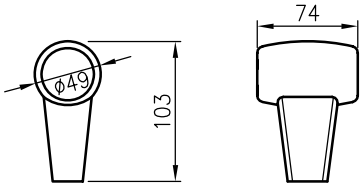
Special handle G2 for controller
ST0, ST1, VCS0, CS1, VNS0, NNS0, VNS2, NS3

List 7 / 2006
3/8

Photo:
G2–LoBK

Without inserts:

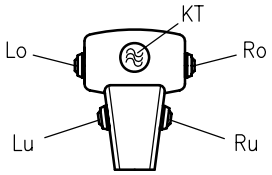
Type G2–...



EUR

With inserts:

Type G2–...–...



Lo/Lu/Ro/Ru = position of push buttons.
KT = capacitive–sensor–deadman

Basic price:

Additional price:

Inserts:
Push button, high version, black, 1NO, with silicon cap
Push button, high version, black, 1NO1NC, with silicon cap
More push buttons see sheet 3/12

Sensor head plate ESS080K–G2
(integrated in G2–handle)

Evaluation electronic ESS080A.
(is necessary for the evaluation of ESS080K–G2)
Further information for the capacitive–sensor–deadman see sheet 3/1

Ordering example:

G2	S0 S2	KT	RoGN
Type			
	Adapter		
		Capacitive–sensor–deadman	
			Push button right up, green, 1S

Adapter:
S0 = adapter for ST0, ST1, CS1, VCS0, VNS0
S2 = adapter for NNS0, VNS2, NS3

Note:
Handle may be mounted in 90° rotated.
Handle protection IP54

High push button 1 NO is standard.
In case of order please give colour of button.
More information about different versions see sheet 3/12.
All push buttons wired, cable length 0,5 m, teflon lead AWG24.
Supply line brown (standard = combined with all inserted buttons),
cable of button accordingly to button colour.

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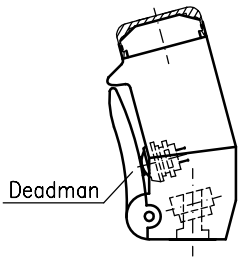
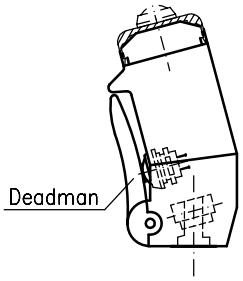
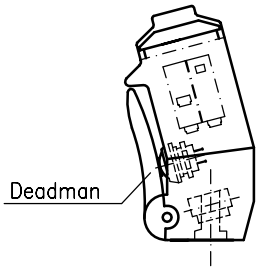
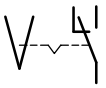
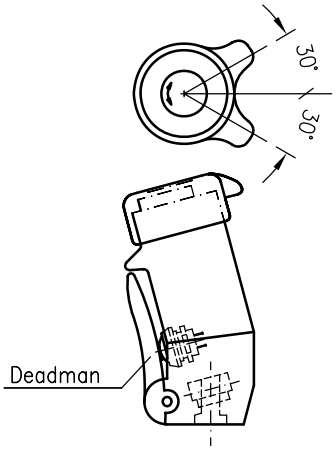
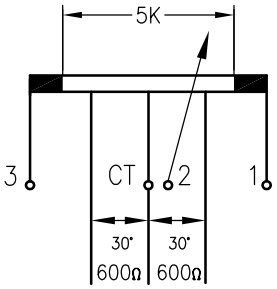
Photo:
G4T–WT

Protection IP54

Rocker switch 24 VDC 16 A

Deadman 24 VDC 2 A

Push button 24 VDC 2 A

	Type	EUR
 Deadman	Deadman 	
 Deadman	Push button  and  deadman	
 Deadman	 Rocker switch 1–0–1 with spring return and  deadman	
	 Rocker switch with stay put 1–2 and  deadman	
 Deadman	 Twist grip G10 with spring return and  deadman	

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Twist switch G13 for controller
ST0, VCS0, CS1, VNS0, NNS0, VNS2, NS3

List 7 / 2006
3/10

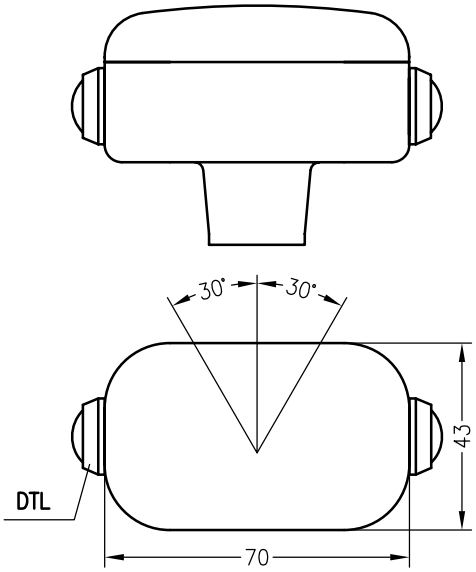
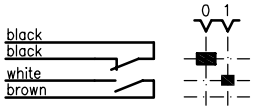
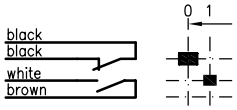
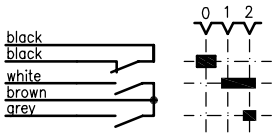
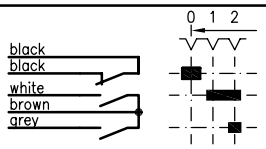
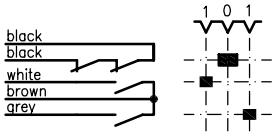
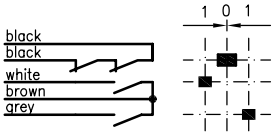
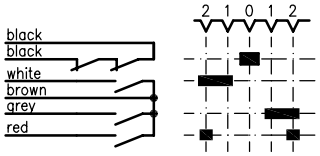
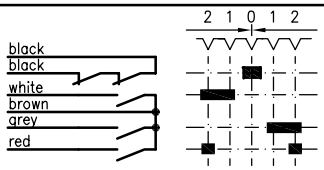
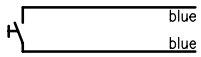
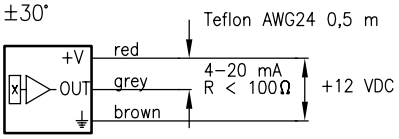


Photo:
G13–DTL

		Type	Basic price EUR
Handle without inserts with adapter Material PA6 black			
Twist switch (stay put)	Twist switch (spring return)		Additionalprice
S1 	**T1** 	**G13__S1** **G13__T1**	**EUR**
S2 	**T2** 	**G13__S2** **G13__T2**	
S11 	**T11** 	**G13__S11** **G13__T11**	
S22 	**T22** 	**G13__S22** **G13__T22**	
Pushbutton left or pushbutton right		**____DTL_** **____DTR_**	
Mechanical interlock		**Z**	
Analog rotary motion ±30° 	Operating temp. –40 °C till +85 °C DIN EN 55011 DIN EN 61000–6–2 (20 V/m)	**AI**	

Ordering example: **G13** **8 12** **T11** **DTL** **bl** **Z** **AI**

- Type — **G13**
- Steel shaft — **8 12** (adapter 8 mm for ST0, VCS0, CS1, VNS0; adapter 12 mm for NNS0, VNS2, NS3)
- Twist switch with spring return 1–0–1 — **T11**
- Pushbutton left — **DTL**
- Colour of pushbutton for example blue — **bl**
- Mechanical interlock — **Z**
- Analogue signal — **AI**

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Universal handle UGA

List 7 / 2006
3/11


UGA

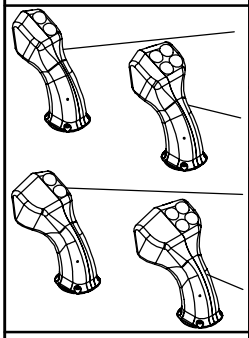
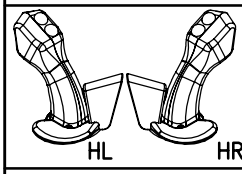

UGA


UGA–RL


UGA–RL


UGAR–HL


UGAL–HL

Arrangement	Description handle	Type	EUR
	Handle small with fixing parts for ST0, CS1, VCS0, VNS0, NNS0, VNS2, NS3	UGA	
	Handle right wide, left small with fixing parts for ST0, CS1, VCS0, VNS0, NNS0, VNS2, NS3	UGAR	
	Handle right small, left wide with fixing parts for ST0, CS1, VCS0, VNS0, NNS0, VNS2, NS3	UGAL	
	Handle right and left wide with fixing parts for ST0, CS1, VCS0, VNS0, NNS0, VNS2, NS3	UGARL	
Position*	**Additionals**		
	Hand–rest, right hand side, height adjustable (2 steps) can be mounted later on	HR	
	Hand–rest, left hand side, height adjustable (2 steps) can be mounted later on	HL	
1, 2, 3, 4, 6R, 6L, 7R, 7L 8, 9, 10, 11	Push–button: 1NO, contact ratings: 48 VAC–500 mA, 24 VDC–2 A Colour: green, yellow, white, red, black, blue, orange, grey, violett short cut: GN YE WH RD BK BU OG GY VT	1..,2..,3..,4..,6R.., 6L..,7R..,7L..,8..,9.., (...colour)	
5	Deadman : 1NO, contact ratings: 24 VDC–2 A Sensor deadman see page 3/1	T KT	see sheet 3/1
7R, 7L	Rockerswitch stayput 0–1 1838 1102 Rockerswitch stayput 1–0–1 1838 1502 Rockerswitch with spring return 0–1 1838 1202 Rockerswitch with spring return 1–0–1 T1522 VLAAA Rockerswitch one side spring return, 1838 1602 one side stay put 1–0–1 } IP40 silver–contacts	W1S W2S W1T W2T W2TS	
Z	Handle, twistable version, with potentiometer and direction contacts Potentiometer see sheet 14/3 Additional price for mechanical direction contacts	DP–GDLR55	
	Handle, twistable version, with analogue hall–sensor Handle, twistable v., with analogue hall–sensor and direction contacts Handle, twistable v., with analogue hall–sensor in redundant version	DH DH–8H1 DHH	
	Handle, twistable version 1–0–1	DM	

Ordering example:

UGA 8 HL DP
UGAL 12 HR 2RD 5T DH
UGAR
UGARL

Type

DH – Twistable version
5T – Deadman
2RD – Push button in position 2 red
HR – Hand rest
12 – Adapter for 8 mm ST0, VCS0, CS1, VNS0; Adapter for 12 mm NNS0, VNS2, NS3

* see sheet M 3/11

Amplifier for hall–sensors, see sheet 16/...
Other fixing parts on request

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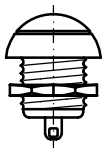
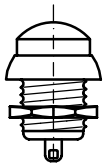
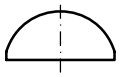
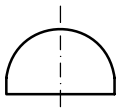
Version	Description	Function	Type	EUR
	Push button flat 1NO		P9F–	
	Push button flat 1NO,1NC		P9F0S–	
	Push button high 1NO		P9H–	
	Push button high 1NO,1NC		P9H0S–	
Fittings: 	Protective cap with silicone for P9F–		RBF	
	Protective cap with silicone for P9H–		RBH	

Ordering example:

P9F WH
- WH: Colour knob (e.g. white)
- P9F: Push button flat 1NO

Following knob colours are available:

GN	=	green
RD	=	red
YE	=	yellow
BU	=	blue
WH	=	white
BK	=	black
GY	=	grey
OG	=	orange
VT	=	violet

Technical data:

Protection IP67
Push button for central fixation (bore ø12 mm)
Contacts with soldered connections
Gold plated silver contacts
Maximal contact load: 24 VDC – 2 A inductive
Minimal contact load: 5 VDC – 1 mA ohmic

Note:

When switching with more than 0,1 A golded coat will get destroyed.
After that no more safe switching of small currents/voltages is assured.

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