Spohn + Burkhardt
seit 1920



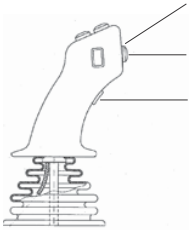


Spohn & Burkhardt Short Form Catalogue

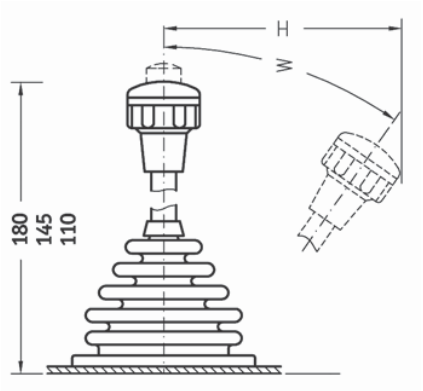








Joystick Controllers

MON joystick controllers

The M0N range of joystick controllers are the smallest in the Spohn & Burkhardt range.

They can be purchased as either a **miniature** model or **standard** model. The auxiliary contacts are capable of 2 amps AC 12 between 50-60 Hz. The mechanical life of the M0N controllers is 10 million operations.

VCS0 joystick controllers

The VCS0 range of joystick controllers are capable of a wide range of applications due to their extensive range of accessories. The VCS0 are referred to as the **compact range.** The auxiliary contacts are capable of 10 amps AC 12 between 50-60 Hz. The mechanical life of the VCS0 controllers is 10 million operations.

VNS0 joystick controllers

The VNS0 range of joystick controllers are capable of a wide range of applications due to their extensive range of accessories. The VNS0 are referred to as the **general range**. The auxiliary contacts are capable of 16 amps AC 12 between 50-60 Hz. The mechanical life of the VNS0 controllers is 20 million operations.

VNS(B)2 joystick controllers

The VNS2 and VNSB2 range of joystick controllers are referred to as the **heavy-duty range** of joystick controllers. The VNS2 joystick is designed to operate AC circuits whereas the VNSB2 are designed to switch DC circuits. The auxiliary contacts are capable of 25 amps AC 12 on VNS2 and 25 A DC 12 on VNSB2.
The mechanical life of the VNS2 and VNSB2 controllers is 10 million operations.

Portable control stations

These control stations allow portability of joysticks and pushbuttons in a number of various configurations.
The T-022A is complete with breastplate for added support. This station is suitable for both the M0N and VCS0 joysticks and pushbuttons as required.

Operator consoles and seat

Our operator consoles and seats are available in a number of different possibilities. These include the FS rotating and fixed chairs for additional comfort, FSM fully motorised chairs for effortless seat movement and SV1C chairs with enlarged consoles for additional control options.

Ratings chart

Type of controller		M0N	VCS0	VNS0	VNS2	VNSB2	Deadman pushbutton in handle
Voltage (Ue)	V	250	250	400	600	600	250
Current (Ie)							
AC 12 (ohmic) 50-60 Hz	A	2	10	16	25	--	4
AC 15 (inductive) 50-60 Hz	A	1	4	6	10	--	3
DC 12 (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
DC 13 (inductive)	24-42 V	--	0.8	1.1	2	10	1.1
	115-230 V	--	0.2	0.2	0.28	2	0.2
DC 12 (ohmic) with gold contact	30 V	--	--	4 mA	4 mA	--	4 mA
Short circuit switch fuse	A	1	6	10	16	16	--
fuse	A	1	6	10	16	16	--
Mechanical life	mill. cycles	10	10	20	10	10	--
Connections:							
Screw		--	M3.5	M3.5	M5	M5	M3.5
Wire profile		--	1.5 mm^2	1.5 mm^2	6 mm^2	6 mm^2	--
With gold contacts	connection	--	--	soldered			
	wire profile	--	--	0.5 mm^2			
Operating temperature	°C	-20 °C to +50 °C					
Humidity	%	80 %					
Switching positions	(max.)	5-0-5 [1])	6-0-6	7-0-7	7-0-7	7-0-7	--
Standard handle length	(mm)	67	110	180	280	280	--
Page No.		44	46	48	49	49	--

Miniature

- For light industrial duty hydraulic applications
- Suitable for pendant stations
- Small and compact

Compact

- Suitable for medium industrial applications
- Suitable for pendant stations and consoles
- Suitable for operator chairs

General

- Heavy-duty
- Suitable for cranes, hoists, etc.
- Strong housing

Heavy duty

- AC current
- Suitable for heavy-duty
- Suitable for cranes, hoists, etc.
- DC current

Note: [1]) Maximum 1-0-1 for M0N miniature

M0N controllers - miniature type
Complete

Features:

- Spring return (fitted standard)
- IP 54 as standard
- Operational life of 10 million cycles
- AC 12 (50-60 Hz)
- Maximum 1 - 0 - 1 steps
- 50mm rubber boot

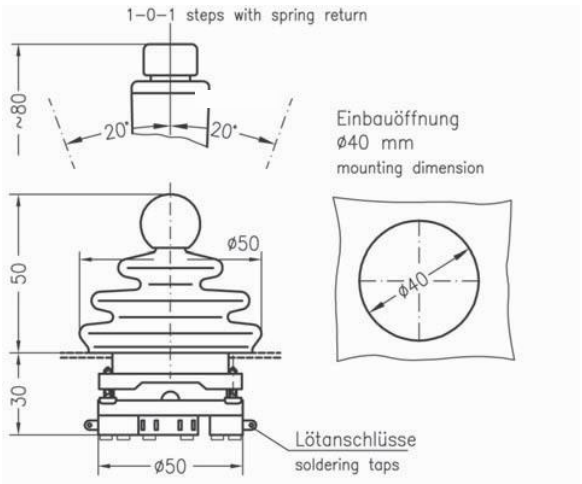
Ideal for Confined Space

Shown fitted with auxiliaries

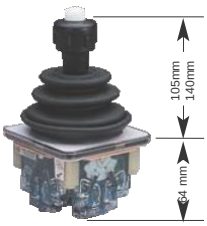
M0N miniature

Description	Contact Configuration	Contact Rating	Cat No.
1 MOTION	1 C/O	Silver contacts	MON5ERW
		240 V AC (6 A)	
		24 V DC (1 A)	
1 MOTION with pushbutton handle	1 C/O	Silver contacts	MON5ERHDW
		240 V AC (6 A)	
		24 V DC (1 A)	
2 MOTION	1 C/O	Silver contacts	MON5VRWW
		240VAC (6A)	
		24VDC (1A)	
2 MOTION with pushbutton handle	1 C/O	Silver contacts	MON5VRHDWW
		240 V AC (6 A)	
		24 V DC (1 A)	

Dimensions in (mm)



VCS0 controllers - compact type



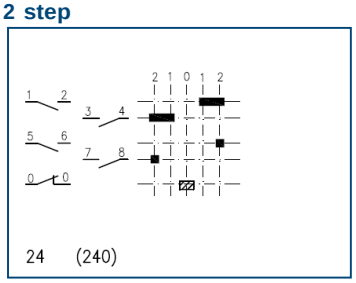
Shown fitted with HU pushbutton and auxiliaries fitted

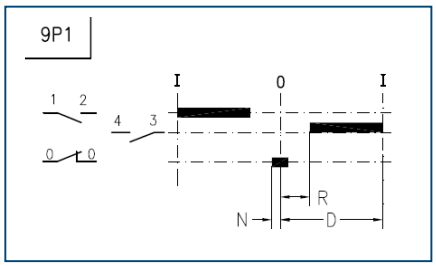
Features:

- IP 54
- Operational life of 10 million cycles
- Rated at 10 amps AC 12 (50-60 Hz)
- Maximum 6 - 0 - 6 steps
- Neutral contacts (closed in centre position)

Operation
VCS09611 ER (240) Controller
VCS09611 ER HU (9P1) Controller
VCS09611 ER HU (240) Controller
2-Motion Controllers
VCS09611VR HU (240) Controller
VCS09611 VR HU (9P1) Controller
VCS09614 VR HU (240).(240)

2 step





Catalogue Number construction VCS0

								OGF----
								PL310----
								PD200----
		72	11	E		SK	TU, HU, HDU, UG,	DP60----
		96	14	V	R	KK	UGN, UGD, IZ, Z	PD550----
	VCS0					AK	ESS080K	PW70----

Model

Escutcheon
72 mm
96 mm

Shaft length
110 mm
140 mm

Operation
E - 1 motion
V - 2 motion

Spring return

Gate type
SK - special gate
KK - cross gate
AK - limiting gate

Handle operation

Encoder or potentiometer

(Refer to page 11 for encoder type and value)

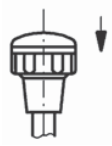
(Refer to page 12 for potentiometer type and value)

VCS0 controllers
Components

(TU)

(HU)

(HDU)



Mechanical interlock (IZ)

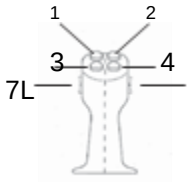
To construct and price your controller add **suffix** to catalogue number as illustrated in the Catalogue Number construction on page 3 - 45.

Suitable for medium industrial applications

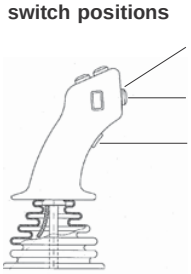
	Operation	Cat. No.
↕	1 motion controller	VCS0_E_
✥	2 motion controller	VCS0_V_

Note: All joysticks ordered and must be complete with cam cutting diagrams and potentiometer/encoder values.

Sensor control knob (ESSO8OK)



Pushbutton & rocker switch positions



UG

UGN

UGD

1Type	Description		Add Suffix
Auxiliary contacts	Each auxiliary block consists of 2 sets of parallel contacts - maximum of 6 contact blocks per motion		-
Escutcheon aluminium front plate		Aluminium 72mm	72
		Fitted Standard 96mm	96
Boot clamp	Provides IP 65 protection to front [2]		-
Boot	Spare	(order separately) 72 mm	V040KE
	Spare	(order separately) 96 mm	V041N
Shaft		Fitted Standard 110 mm	11
		140 mm	14
Spring return	Return to centre position	(price per motion)	R
Gate	Limits direction of movement	Slot or cross	KK
	Limits distance of movement	Limiting	AK
	Special applications (provide drawing)	Special	SK
Handle options			
Handle	Handle complete with deadman knob 5)		TU
with button [1]	Handle complete with pushbutton IP 32		HU
	Handle complete with pushbutton IP 65		HDU
Mechanical	Safety latch to prevent unintended operation	Pull-up	Z
Interlock	(requires a cross gate)	Push-down	IZ
Sensor	Senses touch to enable	Deadman knob	ESSO8OK
Control	handle operation	Relay (order separately)	ESSO8OA
Universal	Standard grip type 6)		UG
handle	Lower hand support type 6)		UGN
	Weatherproof IP 56 type 6)		UGD
Universal	Pushbutton colours 4)	Pushbutton (1-4, 6R, 6L)	-
handle	Add order note for colour	Rocker switch (7R, 7L)	-
accessories	and positions (Refer to diagram) [3]	Deadman switch (5)	T

Notes: Encoders to suit VCS0 controllers available. Refer page 11

Potentiometers to suit VCS0 controllers available. Refer page 12.

[1] TU, HU and HDU handle options only allow operation of 1 N/O + 1 N/C contact set in base of controller. Operation is not linked to aux. contacts mounted on side of VCSO controller.

[2] For boot clamp tick box on page 15.

[3] Add notes to customer order sheet regarding colour of buttons and position. E.g. 2Y would represent yellow button in position 2. Note alongside box marked other, on page 15.

[4] Pushbutton colours: Blue, Red, Yellow, White, Green and Black.

[5] TU handle can be used as a deadman if power is switched through N/O + N/C contacts before auxiliaries.

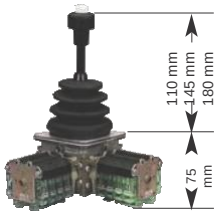
[6] Designed to fit 110 mm shaft only

VNS0 controllers

General Purpose Long Life

Features:

- IP 54 as standard
- Operational life of 20 million cycles
- Rated at 16 amps AC 12 (50-60 Hz)
- Maximum 7 - 0 - 7 steps



Shown fitted with Pushbutton and auxiliaries

Complete with:

Operation	Part. No.
1 motion controller	VNS0_(N OR U)E_
1 motion controller	VNS0_(G OR A)_
2 motion controller	VNS0_(N OR U OR Y OR X) V_
2 motion controller	VNS0_H_
2 motion controller	VNS0_M_
2 motion controller	VNS0_AA_
2 motion controller	VNS0_EA_

Notes: All joysticks must be ordered complete with cam cutting diagrams and potentiometer/encoder values. Refer pages 16-18.

Catalogue Number construction VNSO

									DGO...
									OGR...
									PL310...
									PD200...
				11	NE, UE, G, A, NV,		SK	TU, HU, HDU,	DP60...
				14	UV, YV, XV, H, M,		KK	UG, UGN, UGD,	PD550...
VNS0	1-6	1-6	F	18	AA, EA	R	AK	IZ, Z, ESS080K	PW70...

Model

Number of contact blocks

In direction of view

In cross direction

(if required)

Panel mounting

Shaft length 110 mm
140 mm
180 mm

Contact arrangement

(Refer page 10 for arrangements)

Spring return

Gate type

SK - special gate type
KK - cross gate type
AK - limiting gate type

Handle option

Encoder or potentiometer

(Refer page 11 for encoder type and value)
(Refer page 12 for potentiometer type and value)

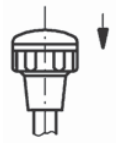
VNS0 controllers
Components

Auxiliary contacts

(TU)

(HU)

HDU)



Mechanical interlock (IZ)

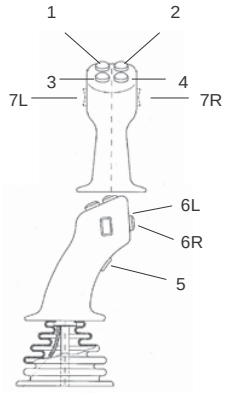
To order, add suffix to Catalogue Number of joystick as illustrated in the Catalogue Number construction.

Type	Description		Add Suffix
Auxiliary contacts[1] Add to Cat. No. the number of contact blocks required for each motion	Each auxiliary block consists of 2 sets of contacts.	1st contact block	1
		Additional contact block	2, 3, 4, 5 OR 6
Escutcheon Plate		Fitted as Standard 96 mm	–
Boot clamp	Provides IP 65 protection to front [3]		–
Boot	Spare	(order separately)	V041N
Shafts		110 mm	11
		145 mm	14
		Fitted Standard 180 mm	18
Spring return	Return to centre position	(price per motion)	R
Gates	Limits direction of movement	Slot or cross	KK
	Limits distance of movement	Limiting	AK
	Special applications	Special	SK

Handle options

Buttons [2]	To suit NE, UE, NV, UV, YV, XV, G, H, M contact arrangements	Deadman knob	TU
		Pushbutton IP 32	HU
		Pushbutton IP 65	HDU
	To suit A, AA, EA contact arrangements	Deadman	TU
		Pushbutton IP 32	HU
		Pushbutton IP 65	HDU

Sensor control knob (ESS080K)



Universal handle

Mechanical unintended interlock a cross gate)	Safety latch to prevent operation (requires	Pull-up	Z
		Push-down	IZ
Sensor handle	Senses touch to enable control operation	Deadman knob	ESS080K
		Relay (order separately)	ESS080A
Universal handle	Standard grip type [5]		UG
	Lower hand support type [5]		UGN
	Weatherproof IP 56 type [5]		UGD
Pushbuttons & rocker switches	Pushbutton colours [4] Blue, red, yellow, white, green, black	Pushbutton (1-4, 6R, 6L)	-
		Rocker switch (7R, 7L)	-
		Deadman switch (5)	T

UG

UGN

UGD

Notes:
[1] Gold contacts are available.
Encoders to suit VNS0 controllers available. Refer page 11.
Potentiometers to suit VNS0 controllers available. Refer page 12.
[2] 1 N/O + 1 N/C. Other contact options available refer Leveltec.
[3] For boot clamp tick box on page 17.
[4] Add notes to customer order sheet regarding colour of buttons and position. E.g. 2Y would represent yellow button in position 2. Note alongside box marked other on page 17.
[5] Designed to fit 110 mm shaft only.
All joysticks must be ordered from Leveltec Engineering and must be complete with cam cutting diagrams and potentiometer/encoder values. Refer pages 14-17

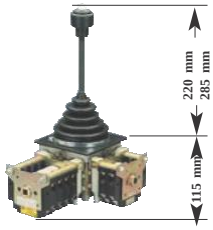
Controller - heavy duty type

VNS2 (AC model) and VNSB2 (DC model)

Features:

- Heavy-duty design
- IP 54 as standard
- Operational life of 10 million cycles
- VNS2 rated at 25 amps AC 12 (50-60 Hz)
- VNSB2 rated at 25 amps DC 12
- Maximum 7 - 0 - 7 steps

Heavy Duty AC or DC applications



Shown fitted with pushbutton and auxiliaries

Operation	Cat. No.
1 motion controller	VNS(B)2_(N OR U) E_
1 motion controller	VNS(B)2_(G OR A) _
2 motion controller	VNS(B)2_(N OR U OR Y OR X) V_
2 motion controller	VNS(B)2_H_
2 motion controller	VNS(B)2_AA_
2 motion controller	VNS(B)2_EA_

Notes: All joysticks must be ordered from Leveltec Engineering and must be complete with cam cutting diagrams and potentiometer values. Refer pages 14-17.

Catalogue Number construction

VNS2	or	VNSB2	1-6	1-6	F	22 28	NE,UE,G,A NV,UV,YV XV,AA,EA	R	SK KK AK	TU,HU,HDU IZ,Z ESSO8OK	DGO PL310 PD200 DP60 PD550 PW70

Model

AC type

DC type

Number of contact blocks

In direction of view

In cross direction

Panel mounting

Shaft length 220 mm

280 mm

Contact arrangement

(Refer to page 10 for arrangements)

Spring return

Gate type

SK - special gate type

KK - cross gate type

AK - limiting gate type

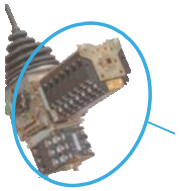
Handle Option

Potentiometer

(Refer to page 12 for potentiometer type and value)

VNS controllers

Components



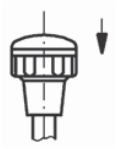
To order, add suffix to Catalogue Number of joystick as illustrated in the Catalogue Number construction

Type	Description		Add Suffix
Auxiliary contacts	Each auxiliary block consists of 2 sets of contacts.	AC (NS2)	**1, 2, 3, 4, 5 or 6**
		DC (NSB2)	**1, 2, 3, 4, 5 or 6**
	Add to Cat. No. the number of blocks required for each motion		
Escutcheon Plate	Fitted as standard	144 mm	**–**
Boot clamp	Provides IP 65 protection to front [2]		**–**
Boot	Spare	(order separately)	**V184KE**
Shafts		220 mm	**22**
	Fitted Standard	280 mm	**28**
Spring return	Return to centre position	(price per motion)	**R**
Gates	Limits direction of movement	Slot or cross	**KK**
	Limits distance of movement	Limiting	**AK**
	Special applications	Special	**SK**

(TU)

(HU)

(HDU)



Mechanical interlock (IZ)

Sensor control knob (ESS080K)

Handle options			
Buttons [1]	To suit NE, UE, NV, UV, YV, XV, G, H, M contact arrangements	Deadman knob	**TU**
		Pushbutton IP 32	**HU**
		Pushbutton IP 65	**HDU**
	To suit A, AA, EA contact arrangements	Deadman knob	**TU**
		Pushbutton IP 32	**HU**
		Pushbutton IP 65	**HDU**
Mechanical interlock	Safety latch to prevent unintended operation (requires a cross gate)	Pull-up	**Z**
		Push-down	**IZ**
Sensor control	Senses touch to enable handle operation	Deadman knob	**ESS080K**
		Relay (order separately)	**ESS080A**

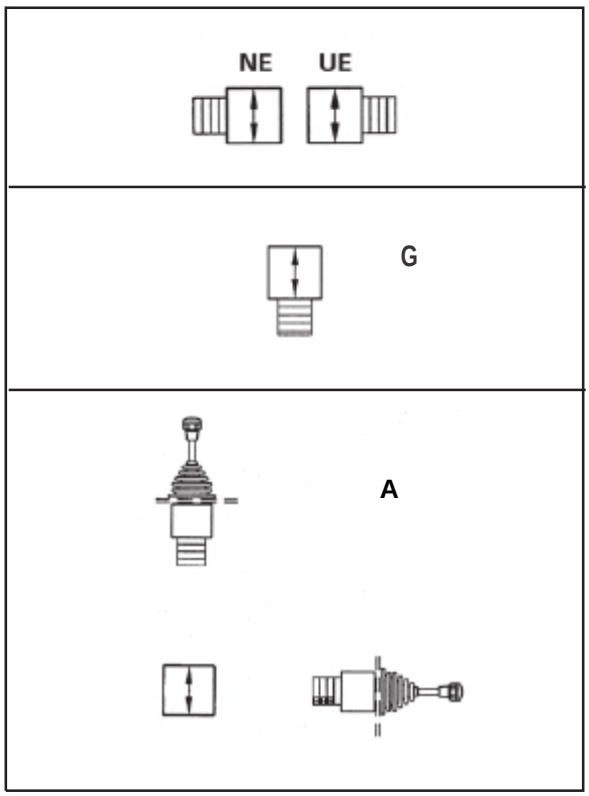
Notes: Potentiometers to suit VNS(B)2 controllers available. Refer page 12.

[1] 1 N/O + 1 N/C, other contact options available. Refer Leveltec Engineering.

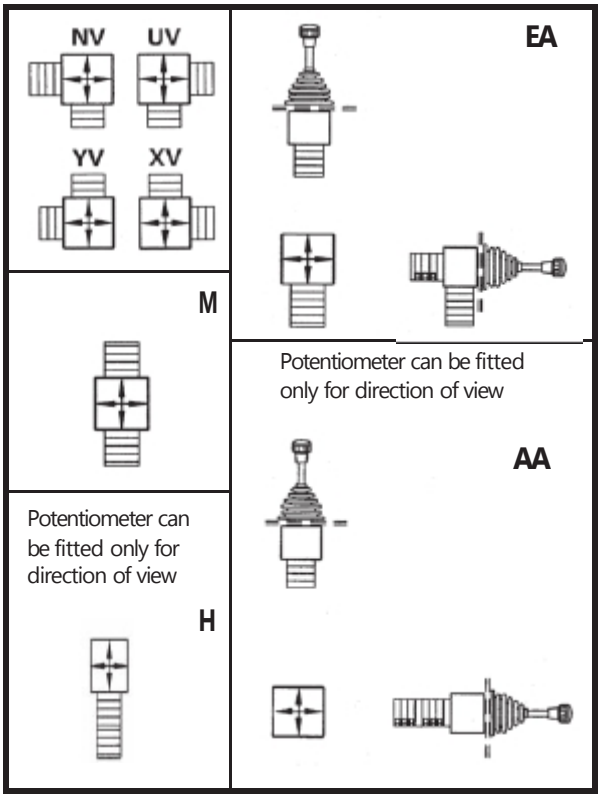
[2] For boot clamp tick box on page 17.

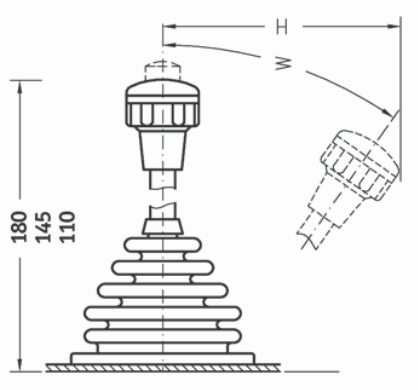
VNSO Joystick contact arrangements and VCSO joystick assembly instructions

1 motion controller

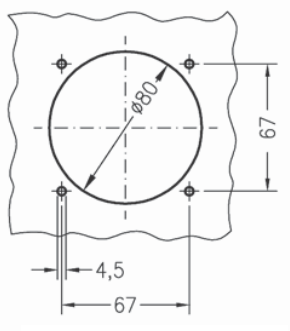


2 motion controller



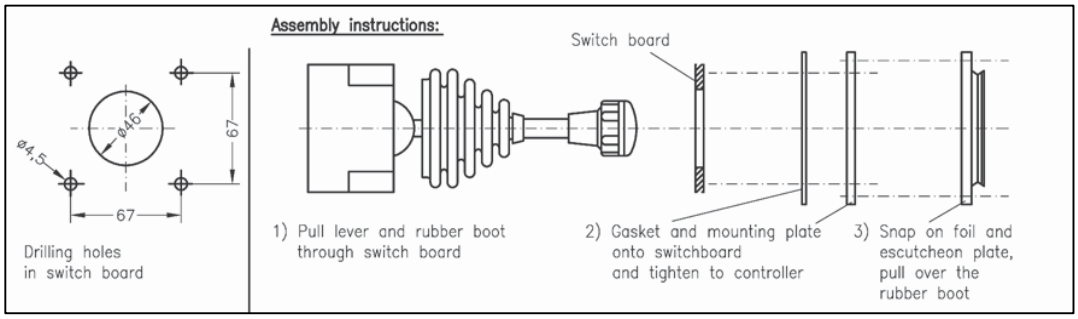


Pos.	W (deg°)	H ~ mm
1–0–1	13°	70
2–0–2	21°	100
3–0–3	30°	135
4–0–4	29°	130
5–0–5	35°	150
6–0–6	36°	155
7–0–7	38°	160



Drilling dimensions for VNSO controller

VCSO Joystick assembly instructions



Encoders and portable control stations

Components and spares


OGF4201

To suit VCS0 controllers

To order add suffix to Catalogue Number of joystick as illustrated in the Catalogue Number construction on page 4.

Type	Description		Cat. No.
Encoders	Opto-electronic	6 bit binary code	OGF 6B
		6 bit gray code	OGF 6G
		20-0-20 mA	OGF 020
		20-4-20 mA	OGF 420

To suit VNS0 controllers

To order add suffix to Catalogue Number of joystick as illustrated in the Catalogue Number construction on page 6.


OER encoder

Type	Description		Cat. No.
Encoder mount	To mount encoders to VNS0 controllers		LEV-SBU12092
Rotary encoder		8 bit binary code	OER 8B
		8 bit gray code	OER 8G
(All new joysticks require encoder mount. See above.)		0-20 mA (linear curve)	OER 0201
		4-20 mA (linear curve)	OER 4201

Portable control stations

Spohn and Burkhardt portable control stations provide user portability of the controls in a durable light weight enclosure. They are available in two different styles which includes the slim design T-001 and models complete with breast plate for additional support.

To suit M0N and VCS0

Convenient Possibilities


TC-022A

Features:

- Highly visible yellow or anti-static black housing
- IP 65 protection standard
- Outside dimensions:
  H 120 mm x W 285 mm x D 195 mm

Optional:

- Joysticks
- 22.5 mm pushbuttons and indicators
  (Refer Price List Catalogue Part B, section 2)

Description	Cat No.
Yellow complete with breast plate and straps	TC-022A
Anti-static complete with breast plate and straps	TS-022A

Potentiometers

Components and spares

PD 200

To suit M0N, VCS0, VNS0 and VNS(B)2 controllers

To order add suffix to Catalogue Number of joystick as illustrated in the Catalogue Number construction on pages 3-8.

Type	Description		Suffix	Cat. No.
Pot mount -	To mount PD200-S237 & PL310 pots to M0N, VCS0, VNS0 &			**LEV-SBU16051**
PD 200-S237	2 mio. cycles 2 watt by 20°C with centre mounting	1k-0-1k ohm	**PZ11**	**LEV-SBU20969**
		2k-0-2k ohm	**PZ22**	**LEV-SBU20970**
		5k-0-5k ohm	**PZ55**	**LEV-SBU20971**
		10k-0-10k ohm	**PZ1010**	**LEV-SBU20972**
PL 310	5 mio cycles 1 watt with centre tap + 20% resistance accuracy	5k-0-5k ohm 5m cable	**PL310 5m**	**LEV-SBU16465**
		5k-0-5k ohm 10m cable	**PL310 10m**	**LEV-SBU32902**

PL 310

DP 60

All joysticks require pot mounts

To suit VCS0, VNS0 and VNS(B)2 controllers

To order, add suffix to Catalogue Number of joystick as illustrated in the Catalogue Number construction on pages 3 - 45, 3 - 47 and 3 - 49.

PD 550

PW 70

Type	Description		Suffix	Cat. No.
Pot mount	To mount DP 60 pots & PW 70 to	VCS0		**LEV-SBU19761**
		VNS0 & VNS(B)2		**LEV-SBU15327**
DP 60 series	1 mio rotations 50 watt, wire wound with centre mounting + 5% resistance accuracy	50R-0-50R ohm	**DP6050**	**LEV-SBU14303**
		80R-0-80R ohm	**DP6080**	**LEV-SBU12583**
		120R-0-120R ohm	**DP60120**	**LEV-SBU12352**
PW 70	10 mio rotations 6 watt, wire wound with centre mounting + 1% resistance accuracy	540R-0-540R ohm	**PF0505**	**LEV-SBU11428**
		1030R-0-1030R	**PF11**	**LEV-SBU11968**
		5k-0-5k	**PF55**	**LEV-SBU11765**
		10k-0-10k	**PF1010**	**LEV-SBU12011**
Pot mount	To mount PD550 to	VCS0		**LEV-SBU14244**
		VNS0 & VNS(B)2		**LEV-SBU16602**
PD 550-S233	10 mio. Cycles 3 watt, wire wound with centre deadband + 5% resistance accuracy	1k-0-1k ohm	**PQ11**	**LEV-SBU11437**
		3k-0-3k ohm	**PQ33**	**LEV-SBU11893**
		5k-0-5k ohm	**PQ55**	**LEV-SBU12072**
		10k-0-10k ohm	**PQ1010**	**LEV-SBU11894**
PD 550-S286	10 mio. Cycles 3 watt, wire wound with no centre deadband + 5% resistance accuracy	1-1K ohm	**PQS11**	**LEV-SBU17791**
		1.5-1.5K ohm	**PQS1.51.5**	**LEV-SBU10843**
		5-5K ohm	**PQS55**	**LEV-SBU12120**
		10-10K ohm	**PQS1010**	**LEV-SBU10846**

Notes: Other pot values available on indent basis.

Potentiometers

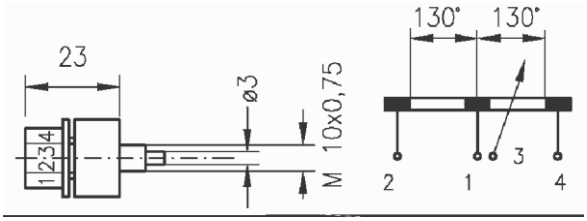
Dimensions and characteristics

Potentiometers to suit M0N, VCS0, VNS0 and VNS(B)2 controllers

PD 200

2 watt
2 mio. cycles

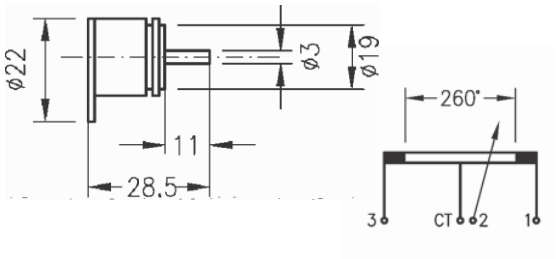
Wire wound
With centre mounting
Max. wiper current 100 mA



PL3101K, PL3105K, PL31010K

1 watt
10 mio. cycles

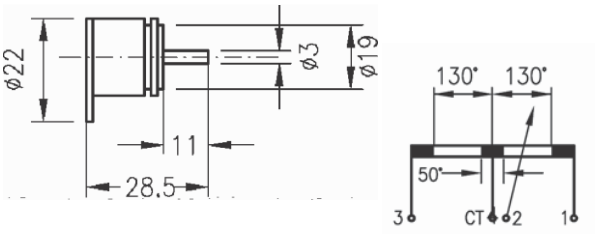
th centre tap
mA



PL310 5-0-5 K, PL310 1-0-1 K, PL310 10-0-10 K

1 watt
10 mio. cycles

conductive plastic with centre tap max. wiper current 1 mA

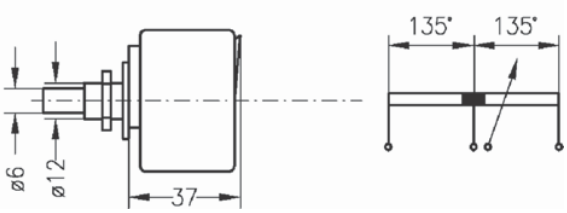


Potentiometers to suit VCS0, VNS0 and VNS(B)2 only

DP 60

50 watt
1 mio. Cycles

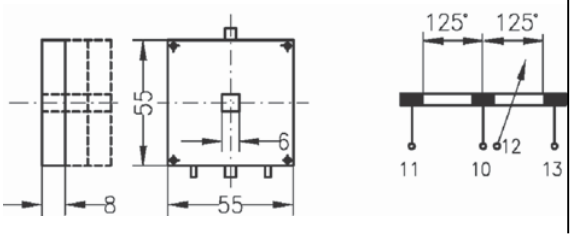
with protection cap



PD 550

3 watt
10 mio. Cycles

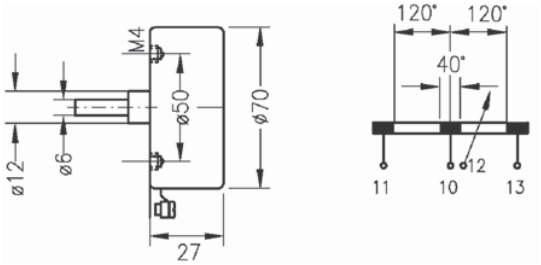
wire wound
with squared hole
max. wiper current 100 mA



PW 70

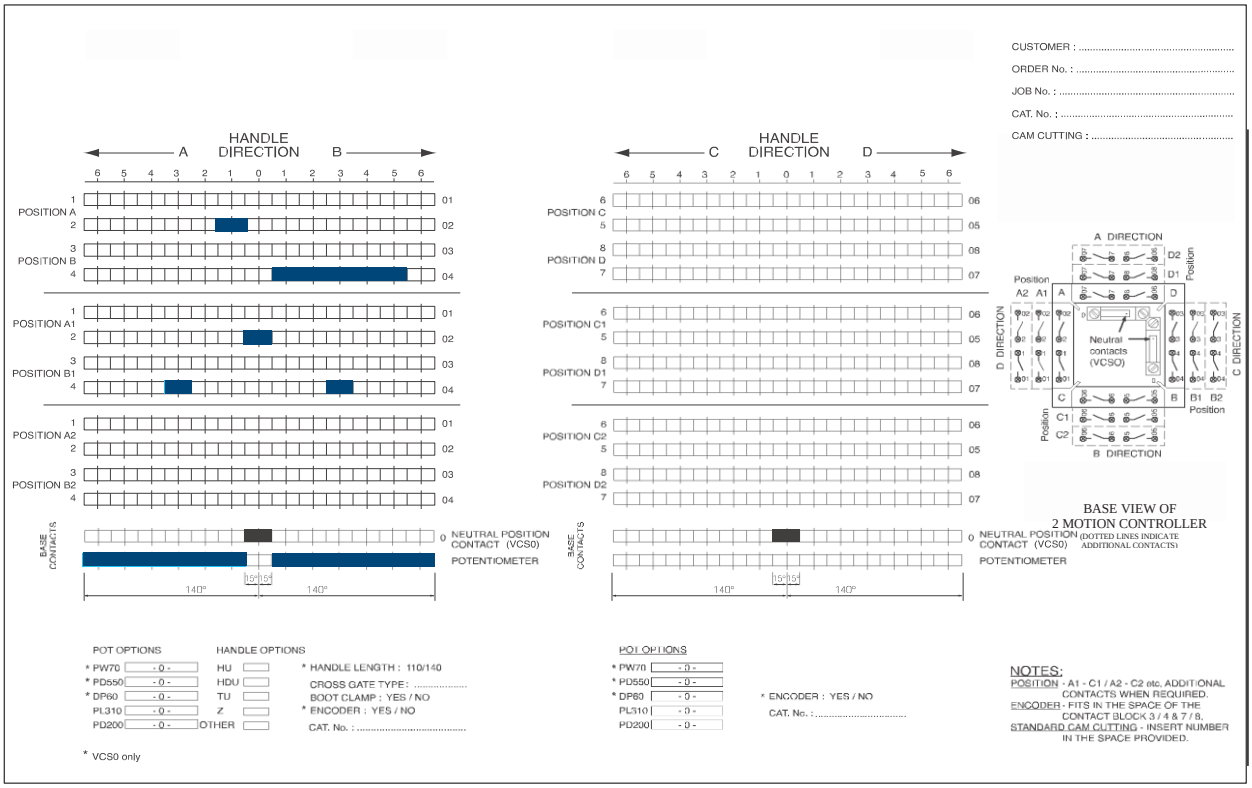
6 watt
10 mio. Cycles

wire wound
with centre mounting
max. wiper current 100 mA



Customer enquiry/cam sheet SM0N/VCS0

How to fill in a cam-cutting sheet



Each row represents a contact in the double contact block and 2 boxes in the row represents 1 step. 2 rows represents 1 double contact block. The position A 1-2, B 1-2, etc is referenced to the base view of the controller to the right of the page. The base view of the controller shows each contact and how they would be labeled on each double contact block.

Terms used in this cam-cutting example

Cam – A cam is a circular disc that is mounted to each axis of the joystick. A cam is required for each contact block.

Cam-cutting – The cams are cut to customer requirements to allow contacts to open or close as the joystick handle is moved. To represent a closed contact on the grid above, shade in the square either side of the step on the respective contact position.

Direction – Direction refers to the motion in which the handle of the joystick is moved.

Position – Each contact block is identified by a letter or a letter with number. This can be seen on the 'Base view of unit' and is represented on the right-hand side of each of the two grids above. The corresponding contact blocks associated with a direction are mounted 90° to that direction, for example, contact blocks associated with A DIRECTION are 2-02 and 3-03.

Steps – Steps are represented by the numbers across the top of each grid 4, 3, 2, 1, 0, 1, 2, 3, 4. A step is a small notch that can be felt as the joystick is moved from the neutral position into a direction. A joystick will not necessarily be required to travel all 4 steps as shown in the examples listed below.

Examples of how the cam-cutting is filled out on the grid.

1) **The POSITION A** contact 2-02 is open in the '0' (neutral position). As the handle of the joystick is moved in the 'B' direction the contact remains open. When the handle is moved into the 'A' direction the contact will close as the handle reaches step 1. The contacts will again open as the joystick reaches step 2.
2) **The POSITION B** contact 4-04 is open in the '0' (neutral position). As the handle of the joystick is moved in the 'B' direction the contact closes at step 1 and remains closed until the handle passes step 3. When the handle is moved into the 'A' direction the contact will remain open.
3) **The POSITION A1** contact 2-02 is closed in the '0' (neutral position). As the handle is moved in either A or B direction the contacts will open.
4) **The POSITION B1** contact 4-04 is closed at step 3 in both direction A and B. This option can be achieved with a double cam arrangement within the one contact block. Limitations to this style of cam-cutting exist, therefore please refer to Leveltec for this requirement.
5) This contact is known as a 'neutral position contact'. Each VCS0 joystick is fitted standard with one of these contacts for each axis. This contact is closed in the '0' (neutral position) only.
6) The bottom line of each of the two grids is for a potentiometer. This example shows the potentiometer operating as the joystick handle is moved in either A or B direction.
7) Below the cam-cutting grid, potentiometer models and values can be listed, along with handle options, handle length, cross-gates and encoders.

VCS0 - CUSTOMER CAM CUTTING SHEET

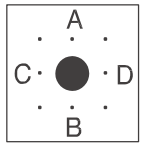
CUSTOMER:.....

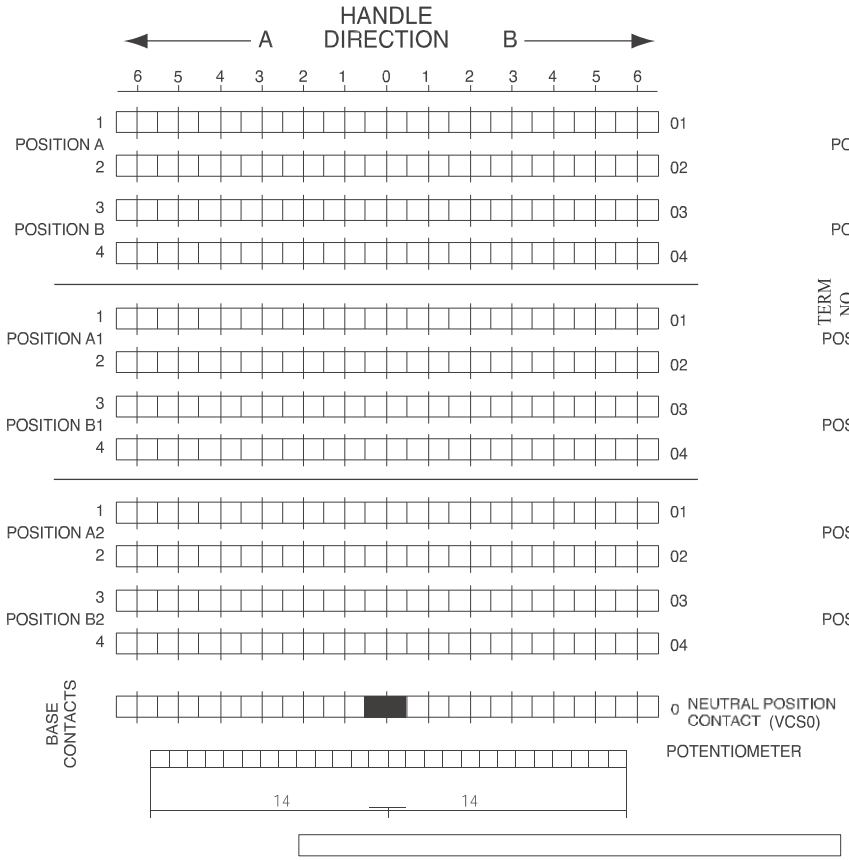
QUANTITY:..... DATE:.....

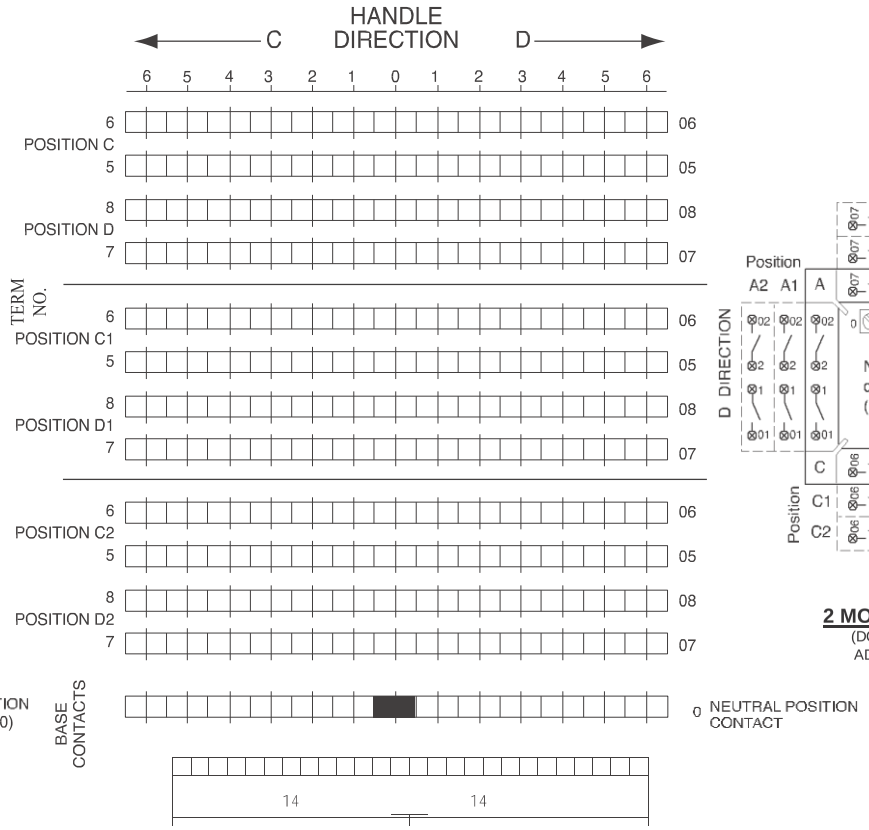
SERIAL No.:..... JOB No.:.....

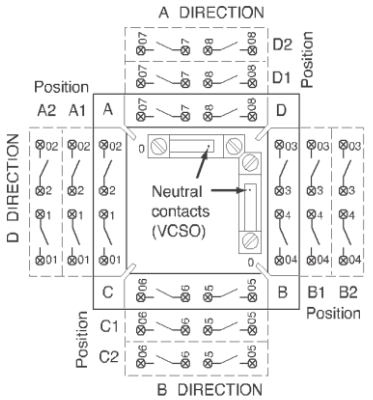
ORDER No. .....

DIRECTION VIEWED FROM TOP OF UNIT









BASE VIEW OF 2 MOTION CONTROLLER
(DOTTED LINES INDICATE ADDITIONAL CONTACTS)

POT OPTIONS

* PW70	- 0 -	HU	
* PD550	- 0 -	HDU	
* DP60	- 0 -	TU	
PL310	- 0 -	Z	
PD200	- 0 -	OTHER	

* VCS0 only

HANDLE OPTIONS

* HANDLE LENGTH : 110/140

CROSS GATE TYPE : .....

BOOT CLAMP : YES / NO

* ENCODER : YES / NO

CAT. No. : .....

POT OPTIONS

* PW70	- 0 -
* PD550	- 0 -
* DP60	- 0 -
PL310	- 0 -
PD200	- 0 -

ENCODER: YES/NO

NOTES:

POSITION - A1 - C1 / A2 - C2 etc. ADDITIONAL COMTATCS WHEN REQUIRED.

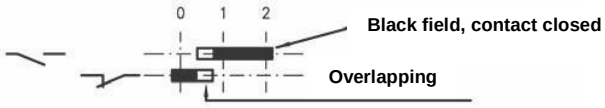
ENCODER - FITS IN THE SPACE OF THE CONTACT BLOCK 3 / 4 & 7 / 8.

STANDARD CAM CUTTING – INSERT NUMBER IN THE SPACE PROVIDED.

NEUTRAL CONTACTS – 1 PER MOTION.

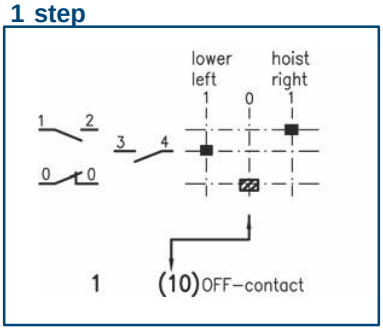
Common cam-cutting examples

Specifications in brackets means with OFF-contact

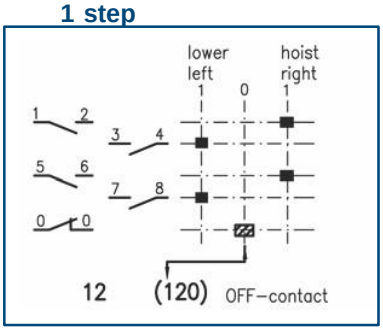


To order a joystick using one of these examples, add code number to end of joystick part number for each axis e.g. VNS023F18NERTU **(20) (40).** Cam cutting sheets will not need to be completed if ordering in this way.

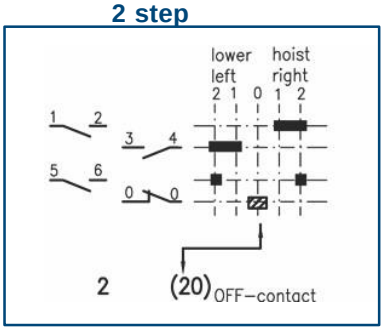
1 step



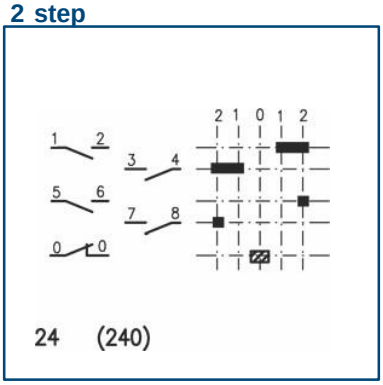
1 step



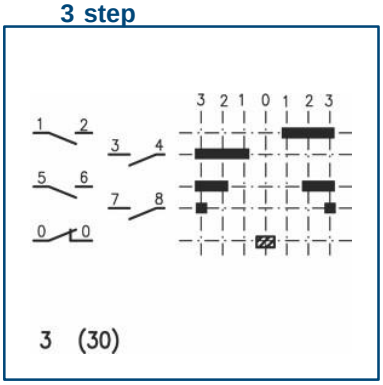
2 step



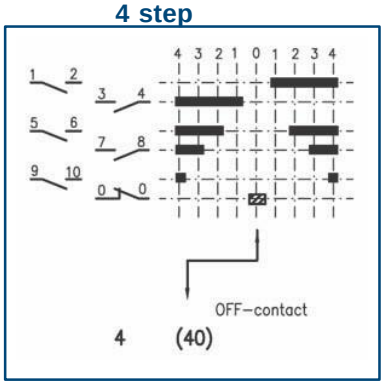
2 step



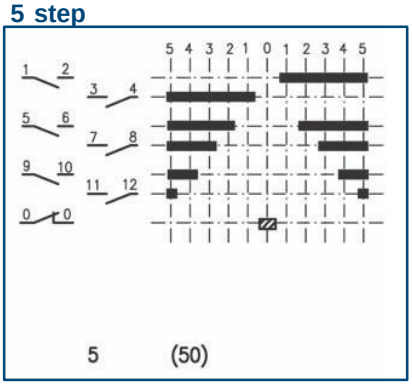
3 step



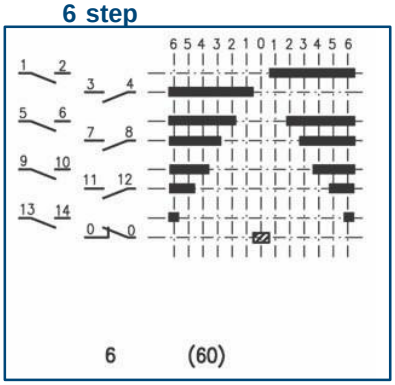
4 step



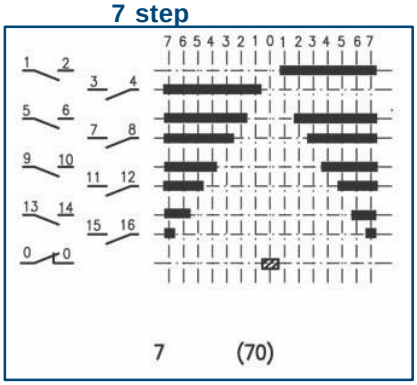
5 step



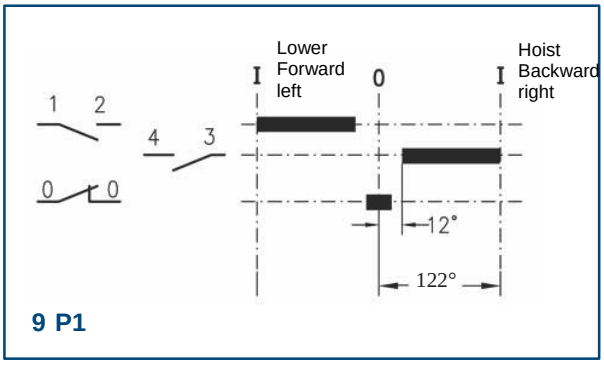
6 step

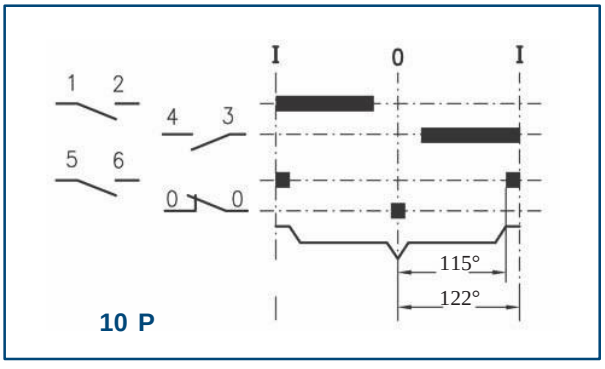


7 step



Typical potentiometer control cam-cutting examples for VNSO controllers





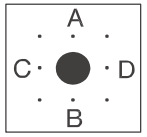
VNS0/VNS(B)2 - CUSTOMER CAM CUTTING SHEET

CUSTOMER:.....

QUANTITY:..... DATE:.....

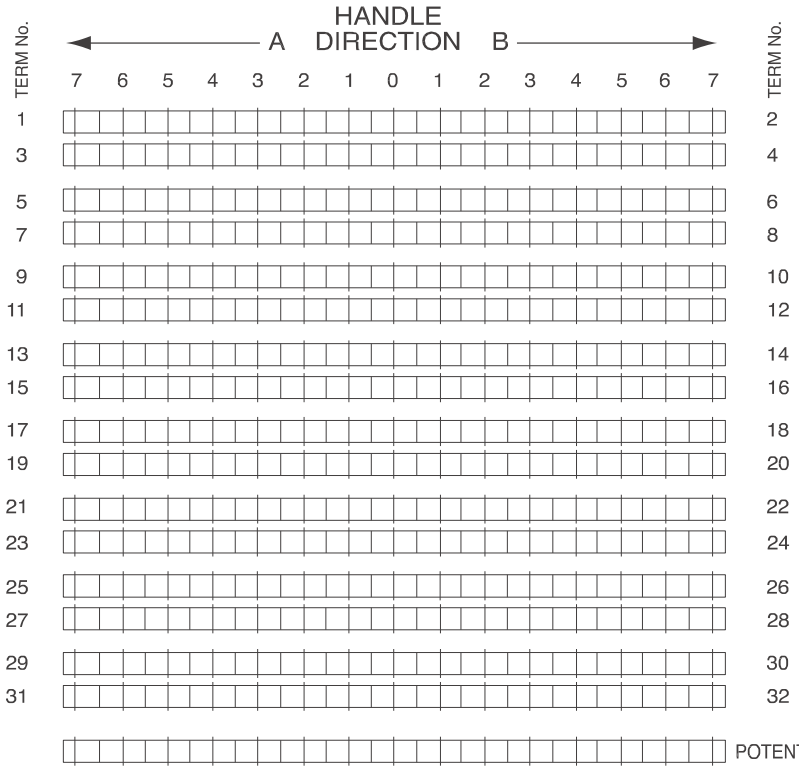
ORDER No.:..... JOB No.:.....

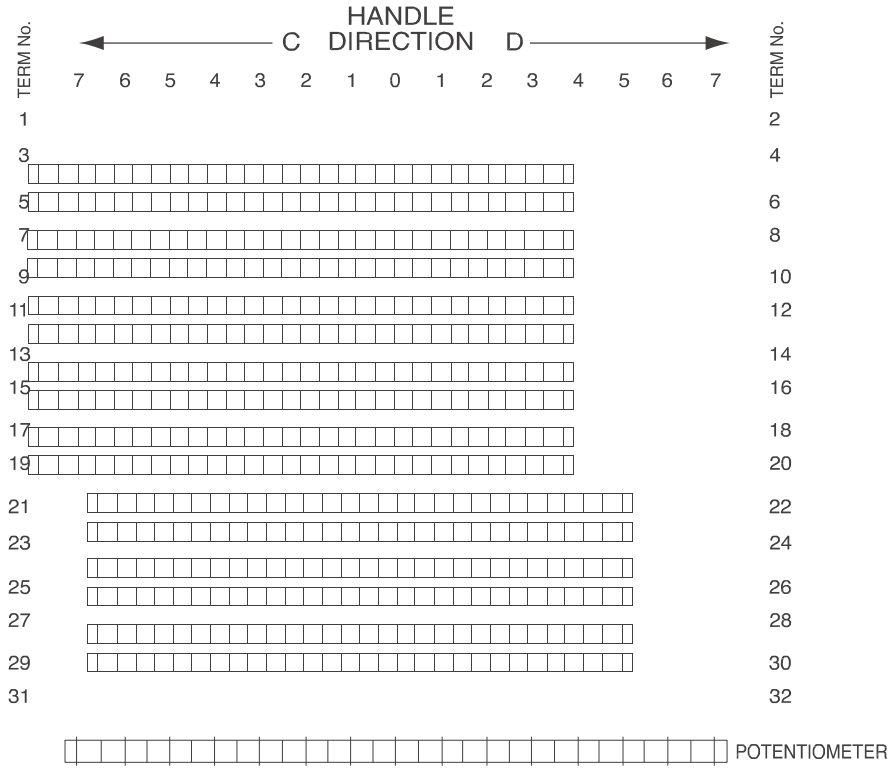
Cat. No. .....



Note: Each aux contact includes 2 sets of contacts, 1/2 and 3/4

DIRECTION VIEWED FROM TOP OF UNIT





POT OPTIONS

PW70	- 0 -
PD550	- 0 -
DP60	- 0 -
PL310	- 0 -
PD200	- 0 -

HANDLE OPTIONS

HU	
HDU	
TU	
Z	
OTHER	

: 220 / 280 - VNS(B)2

HANDLE LENGTH: 110 / 140 / 180 mm

CROSS GATE TYPE: .....

BOOT CLAMP : YES / NO

ENCODER : YES / NO

CAT. No. : .....

POT OPTIONS

PW70	- 0 -
PD550	- 0 -
DP60	- 0 -
PL310	- 0 -
PD200	- 0 -

ENCODER

YES / NO

Operator consoles

Spohn + Burkhardt offer a very large range of consoles that suit many applications, such as, overhead gantry cranes, shiploaders and drag lines; agriculture equipment and stand-alone systems. There is a simple step process to selecting your operator consoles for Leveltec to quote.

STEP 1

Select any Cat. No. for consoles on pages 3 - 59 to 3 - 61.

STEP 2

Select the type of seat configuration you require from pages 3 - 62 and 3 - 63 and add this to console Cat. No.

STEP 3

Write down the complete Cat. No. i.e: SVIC-S722C-K-F-SKO

STEP 4

Contact Leveltec for quotation with complete Cat. No.

FSA - Tiltable consoles

FSA

Features

- Replaceable seat cushions
- Adjustable arm rests
- Backwards collapsible seat
- Tilt and hinged consoles
- 'Dial in' weight compensation
- Actimo S722 seat

Optional

- Joysticks
- 22.5 mm pushbuttons and indicators
- Integral cabin heating (FSA)
- Headrest (Description)

Description	Cat. No.
Stationary	FSA
Rotating	FSAD

FSK – Multiple manual adjustments

FSK

Features

- Replaceable seat cushions
- Forward/Reverse movement
- 'Dial in' weight compensation
- Actimo S722 seat
- Lumbar support

Optional

- Joysticks
- 22.5 mm pushbuttons and indicators
- Integral cabin heating (FSK)
- Headrest
- Foot plates

Description	Cat. No.
Stationary	FSK
Rotating	FSKD

Notes: Refer Leveltec for dimensions and available options to suit.

Operator consoles

FSMMD

Features:

- Back rest inclination
- Manually adjustable seat
- Motorised height adjustment
- Motorised tilt adjustment
- Motorised forward and reverse travel

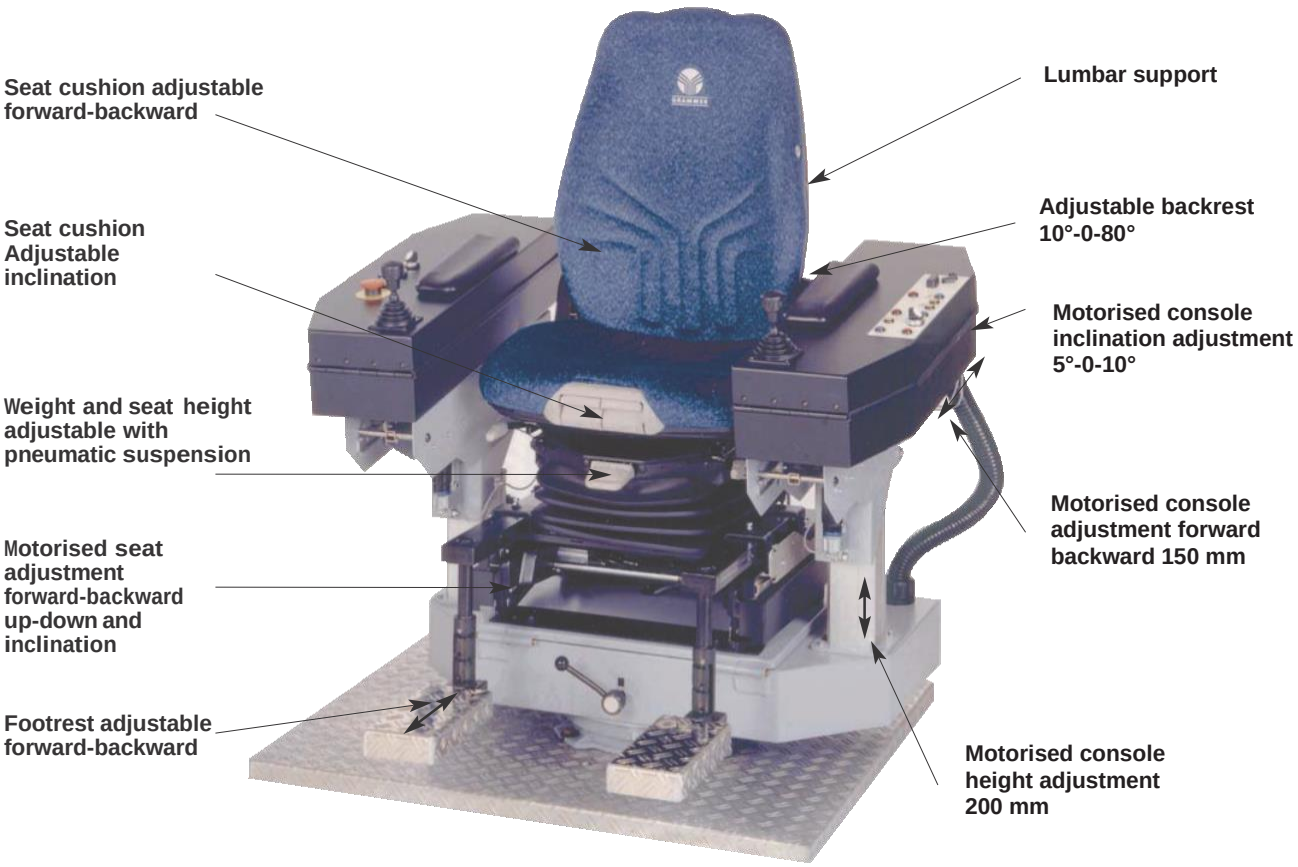
Fully Motorised

Optional:

- Joysticks
- 22.5 mm pushbuttons and indicators
- Suspension
- Preset memory positions (PLC based) for up to 10 operators
- S722 or S210 seat

Description	
Rotating (without suspension)	**FSMD**
Rotating with foot plate (with suspension)	**FSMDF**
Fully adjustable seat position and consoles	**FSMMD**

FSMMD



Notes: Refer Leveltec for dimensions and available options to suit.

Operator consoles

Superior cabin space and room for supplementary controls

The SV1C is built with consoles mounted either side of the seat. The consoles are designed to accommodate heavy-duty joysticks and numerous other control equipment. The seat is fully adjustable between the consoles to position the operator comfortably.

SVC1

SV1C

Features:

- Centre cable entry
- Steel enclosures
- Ergonomically designed Actimo S722C seat
- Adjustable backrest, seat height, tilt and forward/backwards adjustment
- Full hydraulic and spring-dampened seat suspension

Optional:

Joysticks
22.5 mm pushbuttons and indicators
Vinyl or hard wearing nylon upholstery
Armrest vertical tilt, forward and backward adjustments
Adjustable headrest
Sliding consoles
Footrest
Mechanically adjustable lumbar support

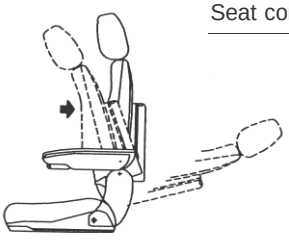
Description	Cat. No.
Flat consoles	SV1C
Angled consoles	SV1CJ

Options including full stainless steel construction also available on request.

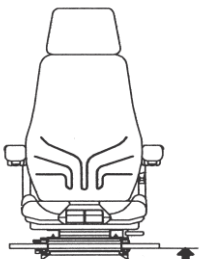
Operator seats - Type S722

Designed to suit the FS series and SVIC console ranges, the Actimo S722 seat range offers complete flexibility to suit the most demanding working conditions. Seats are priced after you choose the seat configuration - refer to Leveltec for special pricing.

Description		Cat. No.
Upper part with seat cushion tilt, seat cushion depth adjustment and mechanical lumbar support	for operator console FSAD with 2x horizontal adjustment	**S722AD**
	for operator console SV1C with 1x horizontal adjustment	**S722C**
Upholstery	cotton black	**S**
	cotton blue/grey	**B**
	vinyl black	**KLS**
Heating in seat and backrest, only with upholstery cotton blue/grey mélange	12 V DC, (7 Amp)	**H12**
	24 V DC, (3.4 Amp)	**H24**
Adjustable headrest		**K**
2 point belt		**G**
Seat belt (suspenders)		**HG**
Pair of armrest [2)]	mounted at backrest	**A**
Suspension with weight adjustment	mechanical height adjustment incl. 80 mm (4-steps)	**F**
	mechanical tilting and height adjustment (± 14° and 70 mm height adjustment, only with SV1C console)	**HFN**
	pneumatic with compressor autom. weight adjustment as well as height adjustment 12 V DC (9 A)	**P12**
	24 V DC (7.5 A)	**P24**
Seat adjustment motor driven [1)]	12 V DC (25 A) without suspension, height	**M**
Manual tilting system [1)]	without suspension, ± 14° tilting, 80 mm height adjustment, additional height 70 mm	**HN**
Seat contact		**SKO**



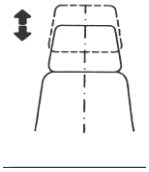
Infinitely variable backrest adjustment.



Suspension is of double coil springs with twin, concentric hydraulic shock absorbers enclosed for operator safety and protection from foreign matter. Suspension travel has an integral vertical adjustment of 60 mm in three levers.

Infinite seat cushion angle adjustment from 5o - 12o added on request

Seat cushion depth adjustable. Ergonomically shaped cushion is of vacuum formed and poured-in-place foam material, in either PVC or cloth textured surface. Cushions can be replaced in seconds.



Backrest extension is adjustable for added height.

Notes: [1)] May also be delivered with additional suspension. Seat height will be 70 mm more, therefore footrest may be necessary.

[2)] Usually armrests AS1-30 used on consoles. Armrests at backrest is not possible for all units.

Ordering example: S772C-K-F

Operator seats - Type S210

For superior posture and comfort look no further than type S210. Made and designed for prolonged seating, the ergonomic seat is ideal for applications such as overhead cranes, where the operator must look between their legs to view action of the crane.

Horizontal adjustment 150 mm

Seat cushion adjustment 150 mm

Mechanical suspension with weight adjustment ca. 50–130 kg with height adjustment 0–30–60–80 mm by lifting seat or height adjustment 70 mm, ±14o tilting.

Option: headrest height adjustment 100 mm tilt 38o

Mechanical lumbar support

Backrest adjustment 10o–0–80o

Description		Cat. No.
Upper part with Y cut out adjustment mechanical lumbar	for operator chair FSAD with 2x horizontal adjustment	S210YAD
	without rod for SV1C	S210YC
Ergonomics	orthopedics for relief of spinal column and intervertebral disk	RD
Upholstery	outside vinyl/inside cotton	S
	leather black without ergonomics	RNL
	leather black with ergonomics	RNLRD
Electrical seatback adjustment	12 V DC	LE
Heating in seat and backrest	12 V DC without option "RD"	H
	12 V DC with option "RD"	HRD
Adjustable headrest		K
2 point seatbelt		G
4 point seatbelt		HG
Pair of armrest [2]		A
Suspension with weight adjustment	mechanical height adjustment incl. 80 mm (4-steps)	F
	mechanical tilting and height adjustment (± 14° or 70 mm) (only with SV1C console)	HFN
	pneumatic with compressor automatic weight adjustment 12 V DC (9 A)	P12
	pneumatic with compressor automatic weight adjustment 24 V DC (7.5 A)	P24
Seat adjustment motor driven [1]	12 V DC (25 A) without suspension	M
Manual tilting system [1]	without suspension, ± 14° tilting, 80 mm height adjustment, additional height 70	HN
Seat contact	evaluation electronics 24 V	SKO

Notes: [1] May also be delivered with additional suspension. Seat height will be 70 mm more, therefore footrest may be necessary.

[2] Usually armrests AS1-30 used on consoles. Armrests at backrest is not possible for all units.

Ordering example: S210YAD-LE-K-P24