

Single, cross and 360° axis servocontrols



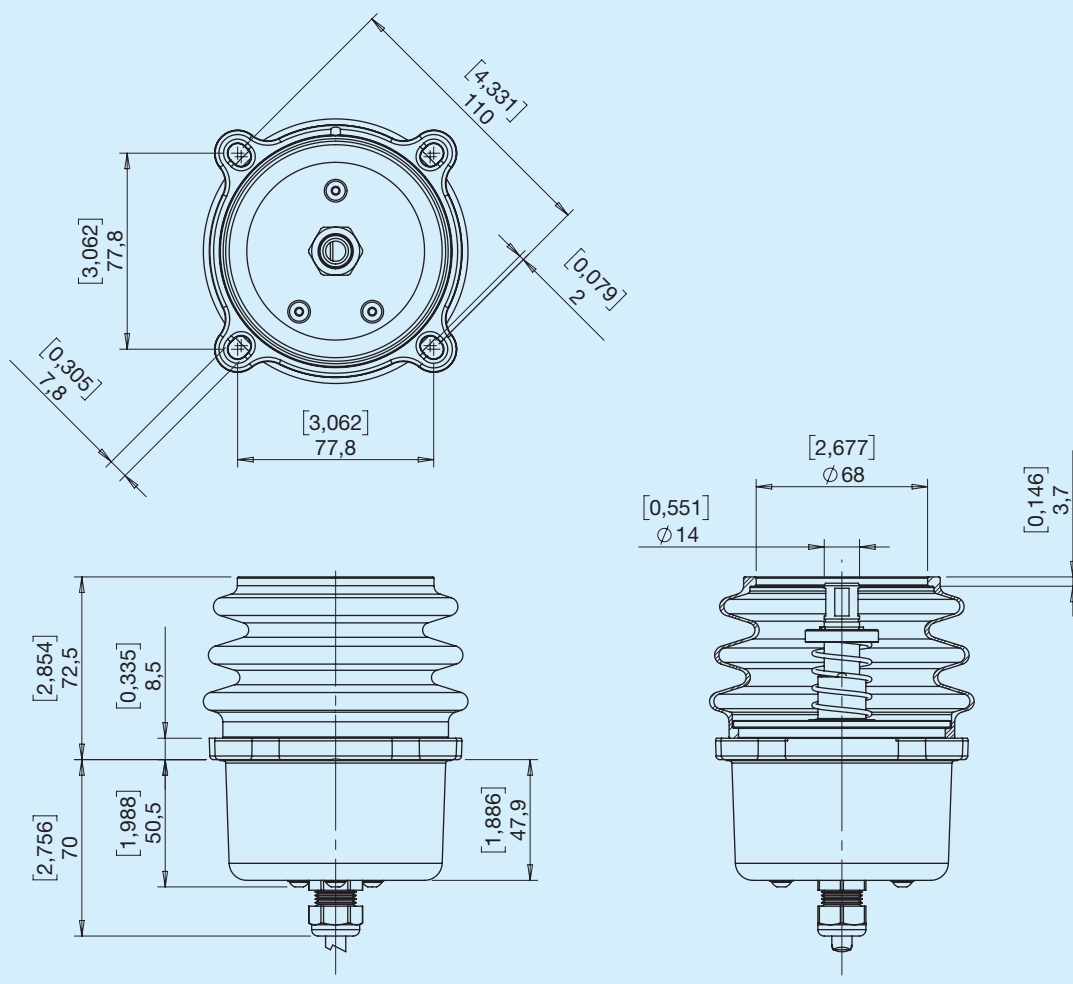
Before use, carefully read the document entitled GENERAL INSTRUCTIONS FOR HYDRAULIC AND ELECTRONIC SERVOCONTROLS AND SUPPLY UNIT USE.

Description

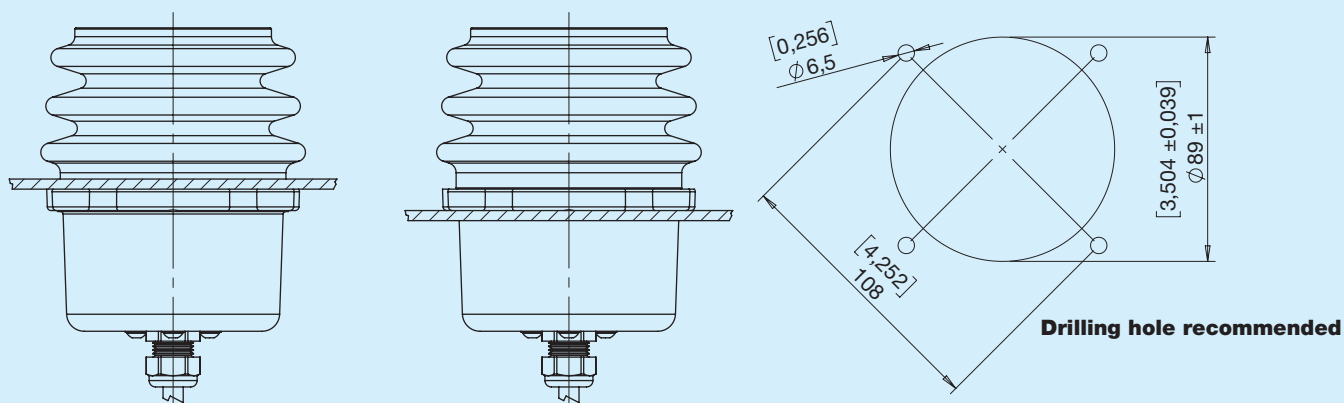
The JOY-3D joystick is designed for use in all types of agricultural, industrial and earth moving machinery. Thanks to the use of CAN-Bus technology and the wide availability of configurations, the JOY-3D joystick adapts to the most varied command and control functions, always guaranteeing maximum ergonomics and user comfort. For example, it can be integrated for the electric remote control of variable displacement pumps (hydrostatic transmissions) and directional flow control valves (distributors). The technology used to detect axis movements is based on an innovative 3D Hall effect sensor, a single component capable of distinguishing the variation of the magnetic field with respect to the x, y and z axes. The internal structure is made of aluminium to achieve the optimum balance between lightness and robustness; The linkages, on the other hand, are made of steel, while the outer shell is made of plastic to ensure durability over time. In addition to the 3D sensor, the electronic board in the base of the joystick also manages operator input from buttons and rollers. The 32-bit microcontroller and CAN-Bus interface also allow the JOY-3D joystick functionality to be configured directly on the machine using the special Bondioli& Pavesi application; Pavesi for PC, available on request. The JOY-3D is available as a Smart version, without a second microcontroller, or as a Full version with an additional safety microcontroller for safety-relevant applications. Contact the Sales Department to choose the most suitable electronic set-up for the end-use conditions.

Features

- High performance thanks to the 32bit microcontroller
- Tested for electromagnetic compatibility (EMC) according to ISO 14982 and UNI EN ISO 13766
- Compliant with Directive 2014/30/EU
- Operating temperature $(-20 \div 70) ^\circ\text{C}$ / $(-4 \div 158) ^\circ\text{F}$
- Storage temperature $-40 \div 80 ^\circ\text{C}$ $(-40 \div 176 ^\circ\text{F})$
- MTTF estimated at 18 years with use profile of 18.26% (8 hours a day, 5 days a week, 200 days a year), depending on use conditions.
- Degree of protection up to IP54
- Number of guaranteed cycles without appreciable degradation of mechanical characteristics:
 - 4,000,000 cycles (non-clutch controlled)
 - 1,000,000 cycles (clutch controlled, a maximum of 3 clutch load adjustments are permissible)
- Vibration resistance according to IEC 60068-2-64 and IEC 60068-2-27
- Mechanical shock according to ISO 15003, paragraph 5.5.2, 5.6.1 and 5.6.2
- Functionality for safety-relevant applications only available in combination with non-clutch controlled bases

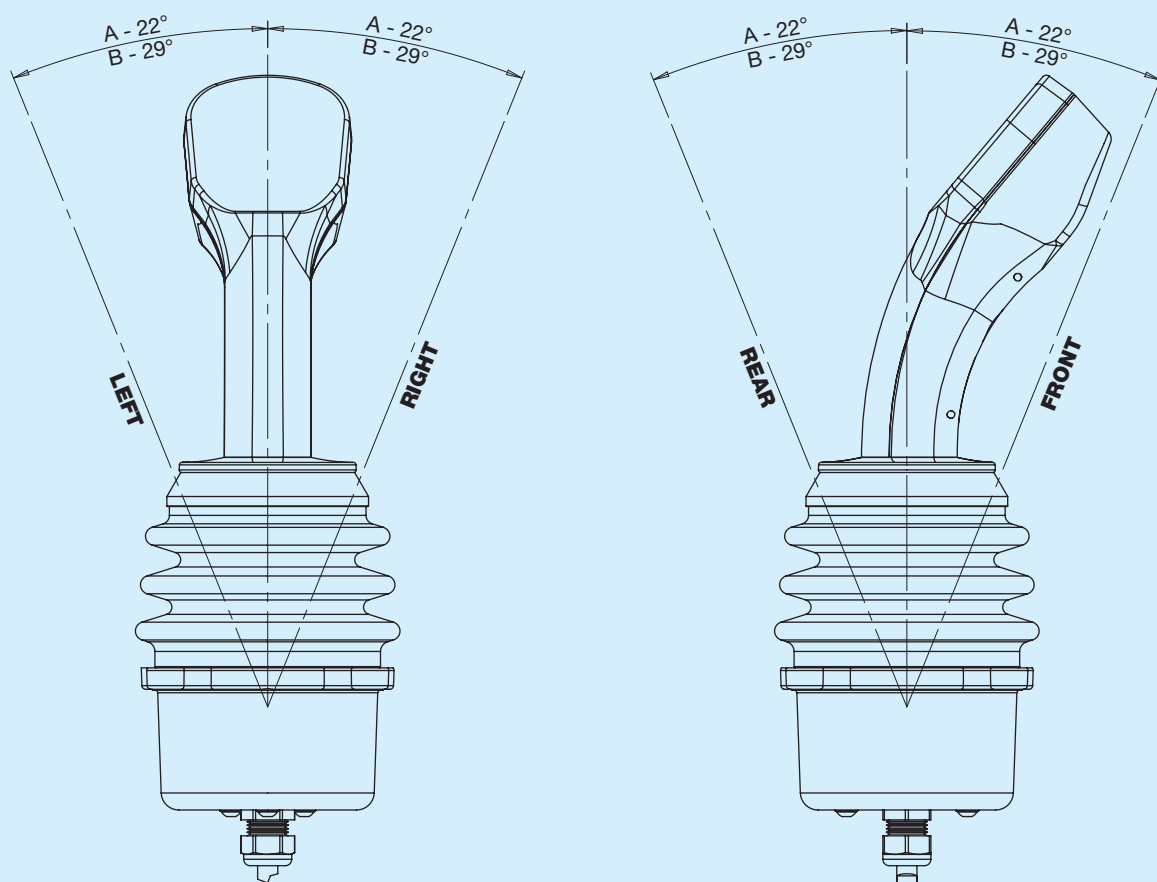


Base dimensions and grip attachment information (all models)



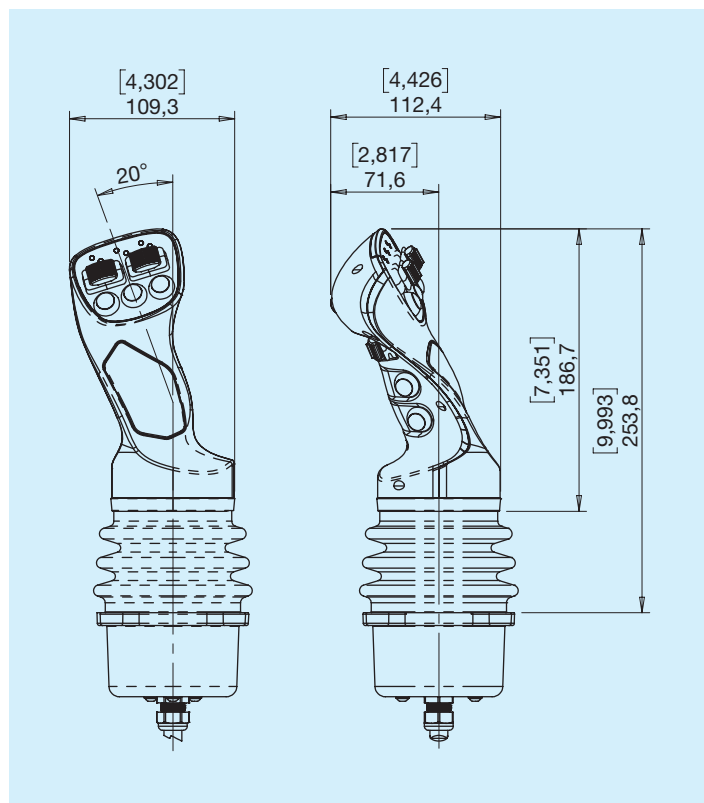
Panel drilling for mounting from above or below

Grips excursion (all models)

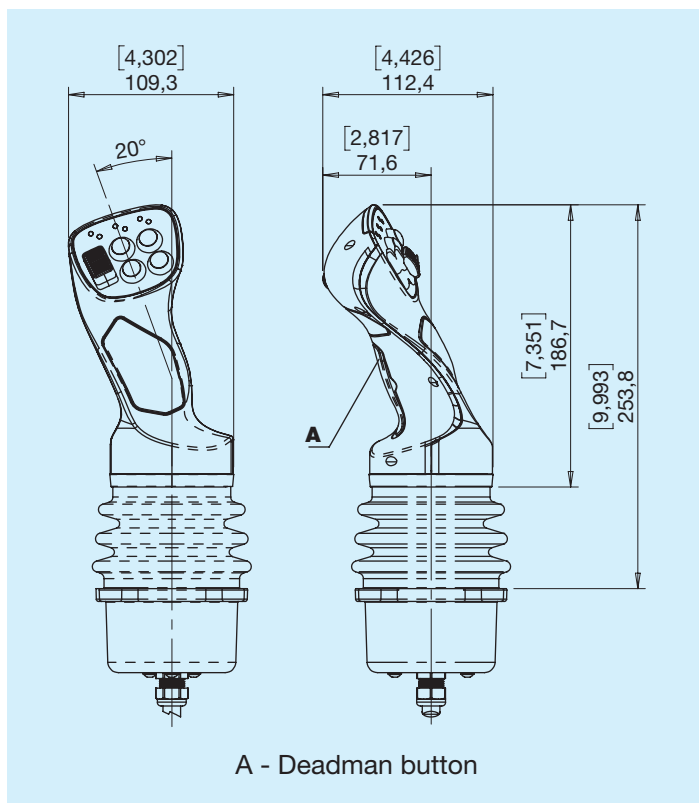


A=movement angle on single axis B=simultaneous movement angle on 2 axes (45° diagonal)

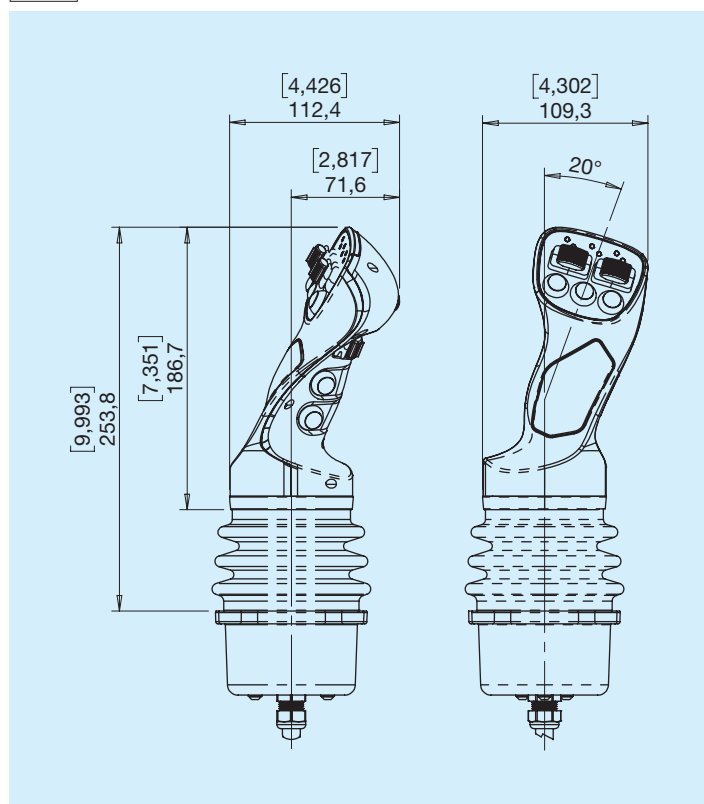
R Evo right



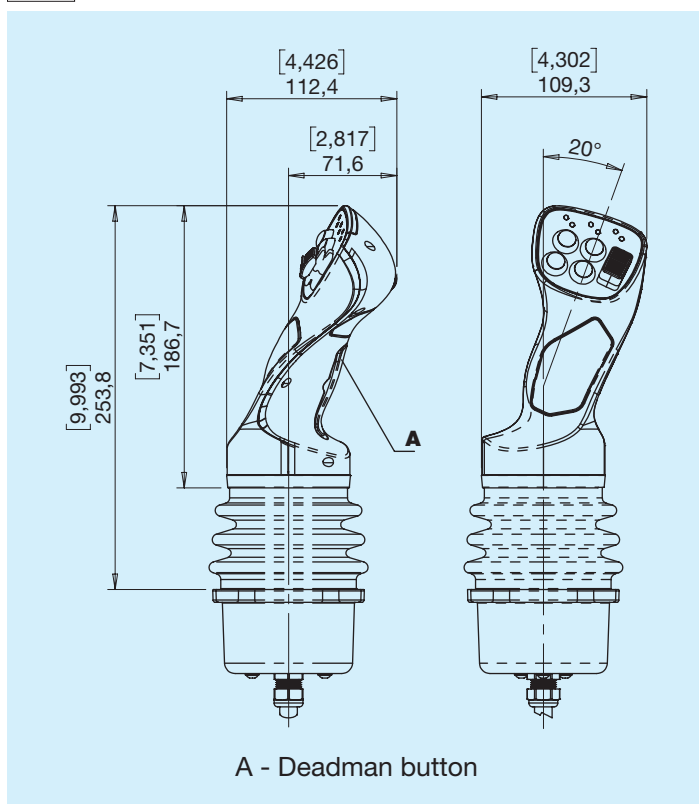
P EVO right deadman



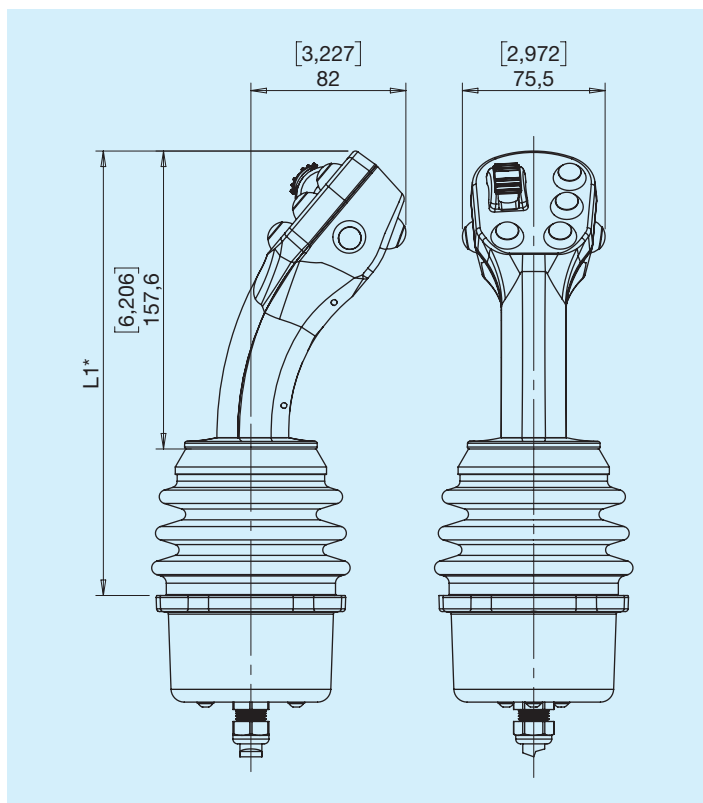
L Evo left



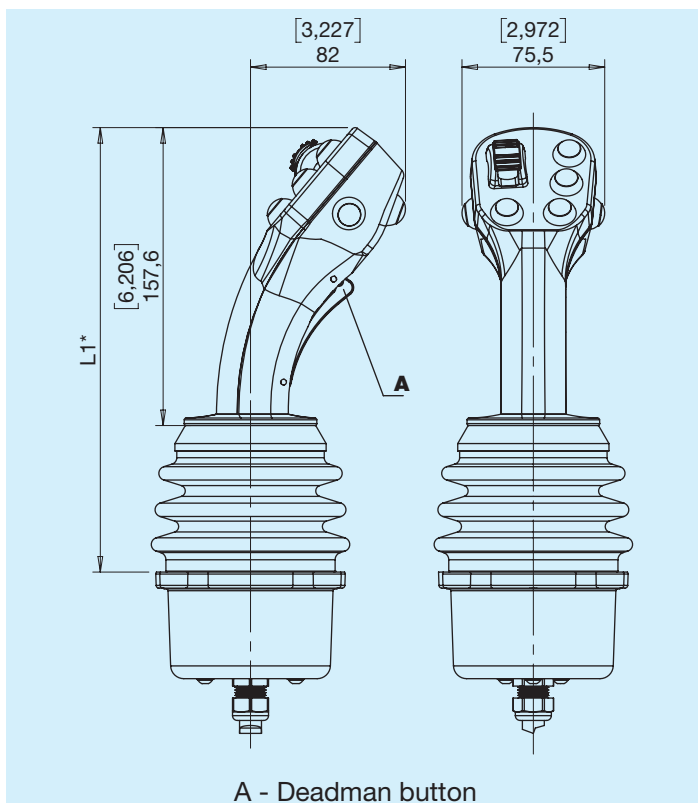
Q EVO left deadman



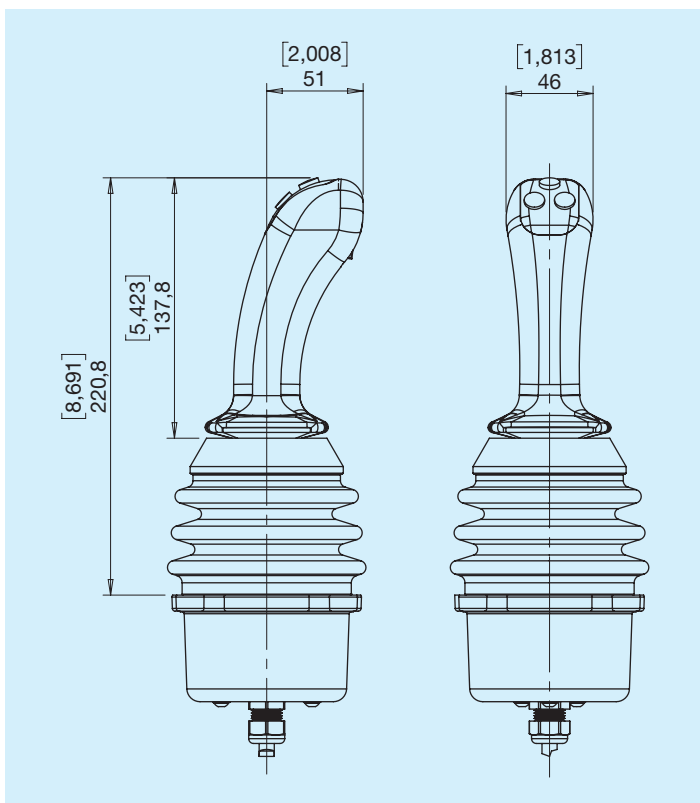
T Multifunctional



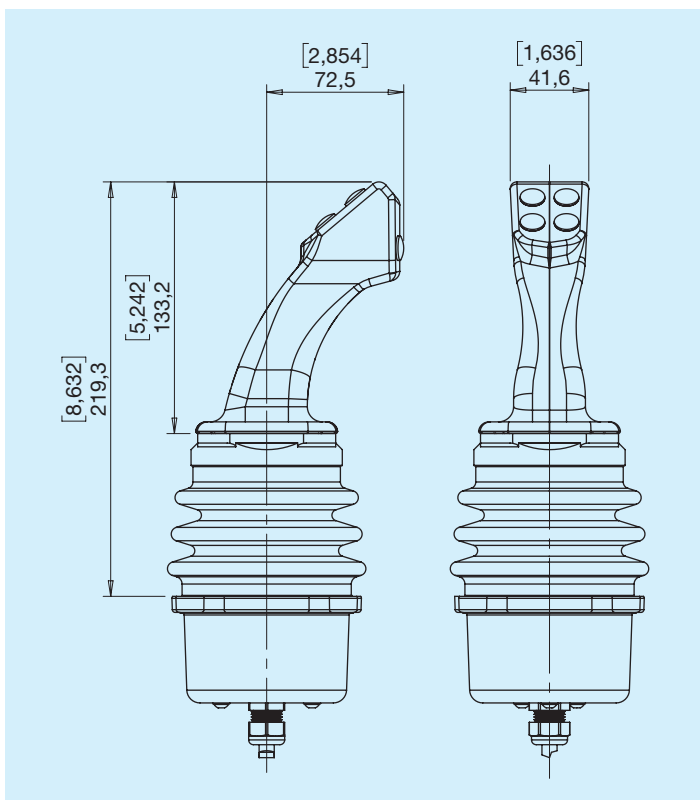
H Multifunctional Deadman



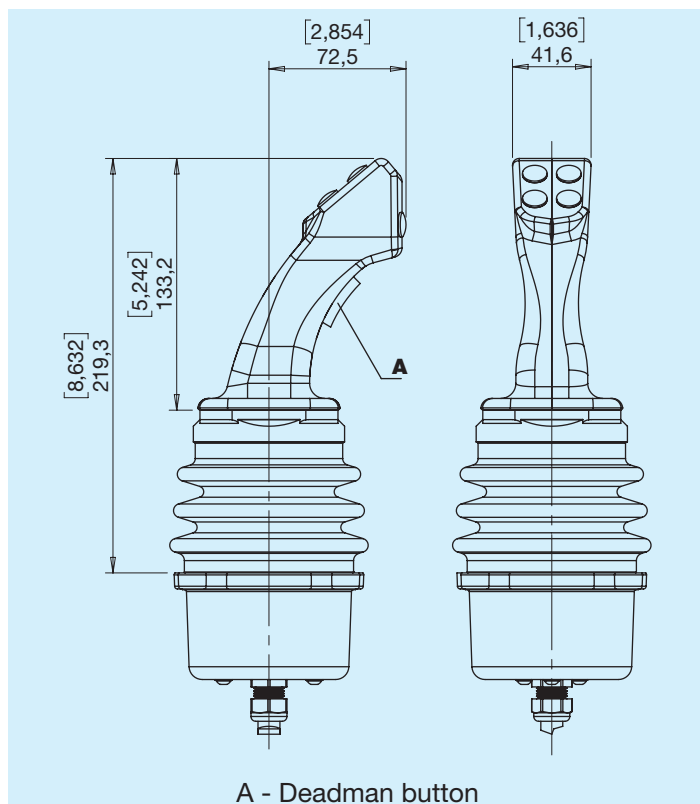
S Anatomic



E Ergonomic



F Ergonomic deadman



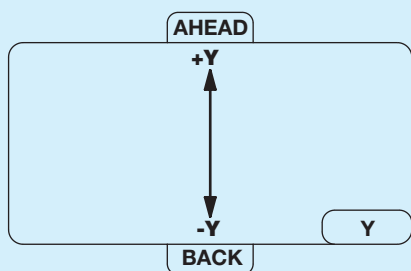
Mechanical configurations

The JOY-3D base is available in the versions described and illustrated below.

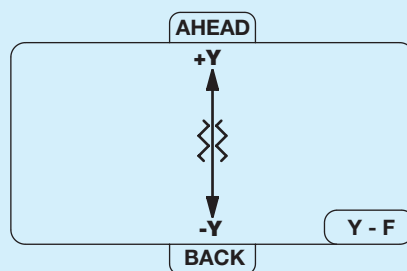
The mechanical design of the JOY-3D is designed to allow easy:

- Determine the type of movement: Y-only, X-Y cross movement or 360° thanks to the interchangeable plaques attached to the base;
- Use different antagonist springs to achieve more resistant forces on the grip, ensuring the best balance between use comfort and stability;
- Fine-tune the resistant force in the case of a clutch controlled axis (Y): the system uses bronze pads that ensure high wear resistance and repetitive operation.

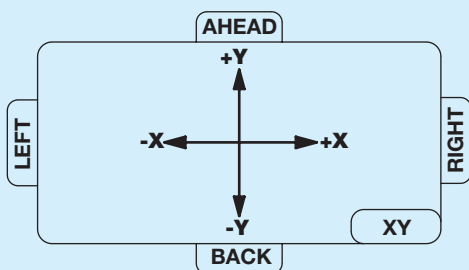
L Y-axis only



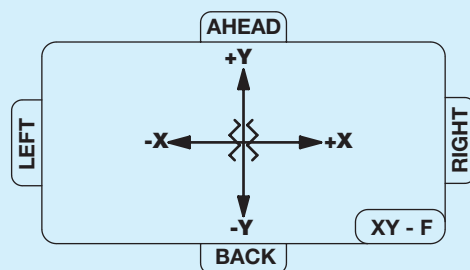
M Y-axis only - Clutch controlled Y-axis



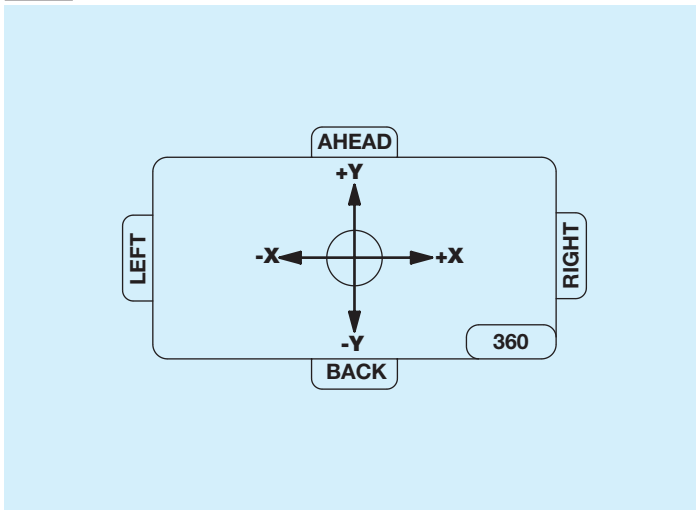
N X-Y cross movement



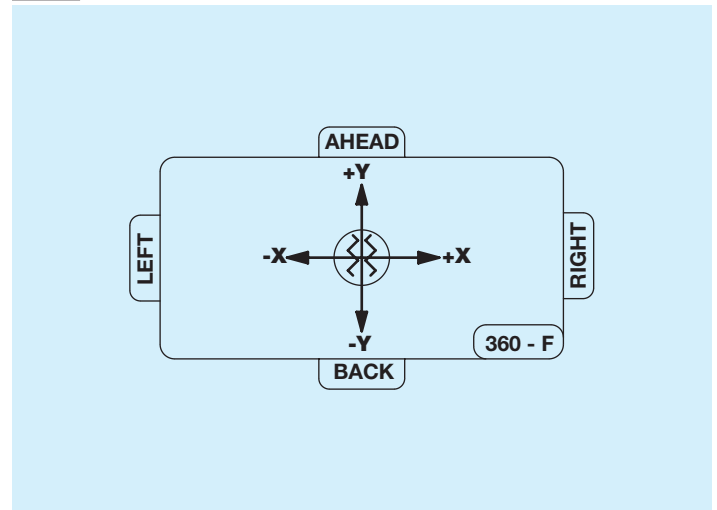
P X-Y cross movement - clutch controlled Y-axis



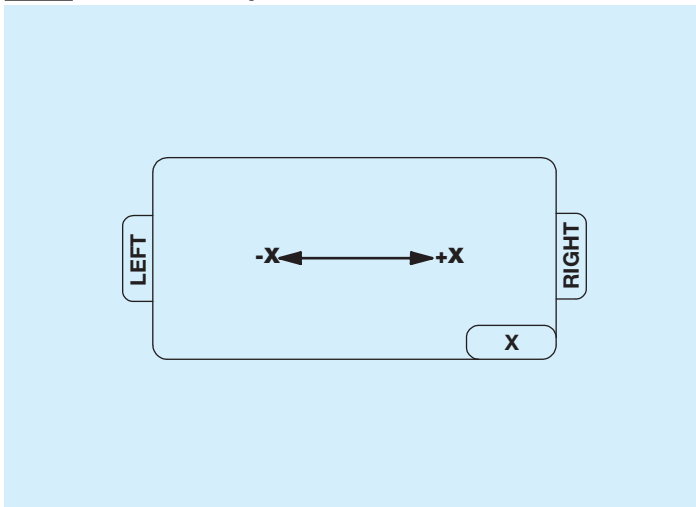
R 360° movement



S 360° movement - Clutch controlled Y-axis

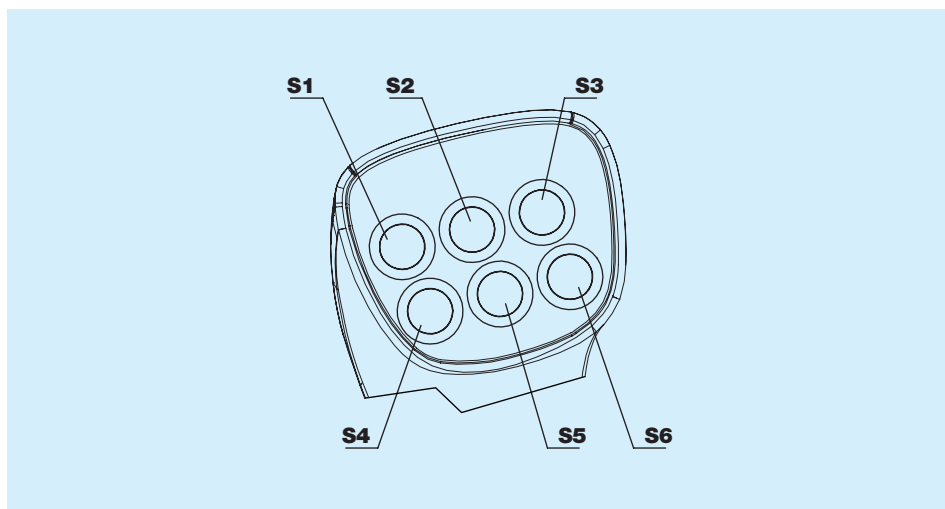


T X-axis only



Safety functions are only available in combination with non-clutch controlled bases.

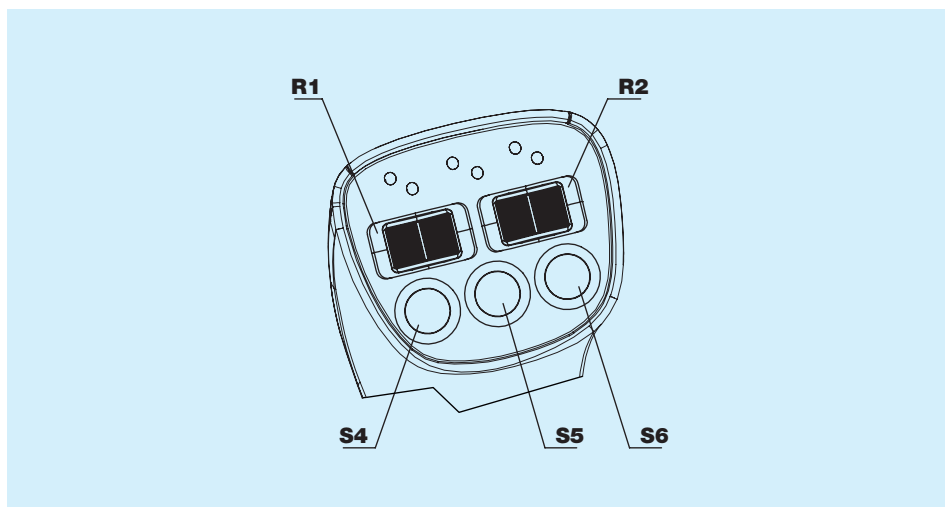
Front electrical controls



Configurations

Code	Description
03F	S1+S2+S3+S4+S5+S6
038	S4+S5+S6
007	S1+S2+S3

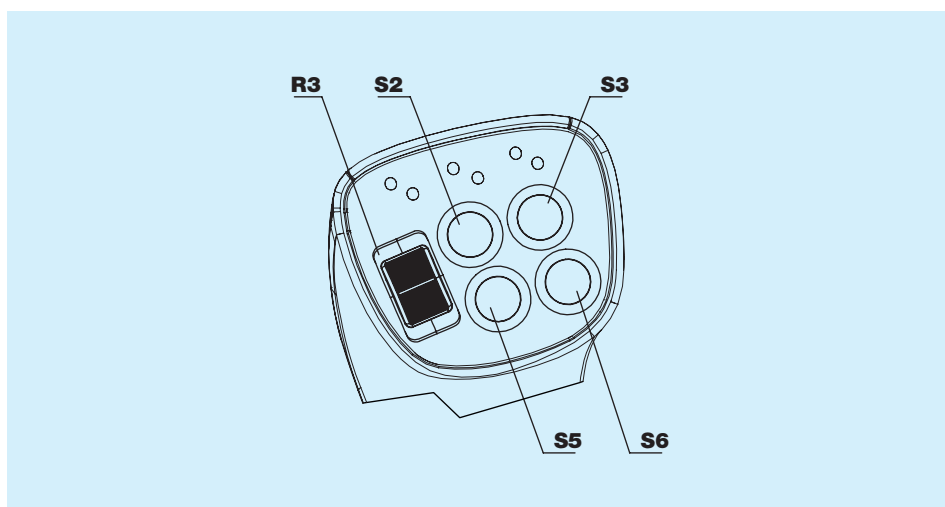
Front electrical controls and horizontal double roller



Configurations

Code	Description
338	R1+R2+S4+S5+S6
300	R1+R2
328	R1+R2+S4+S6
310	R1+R2+S5

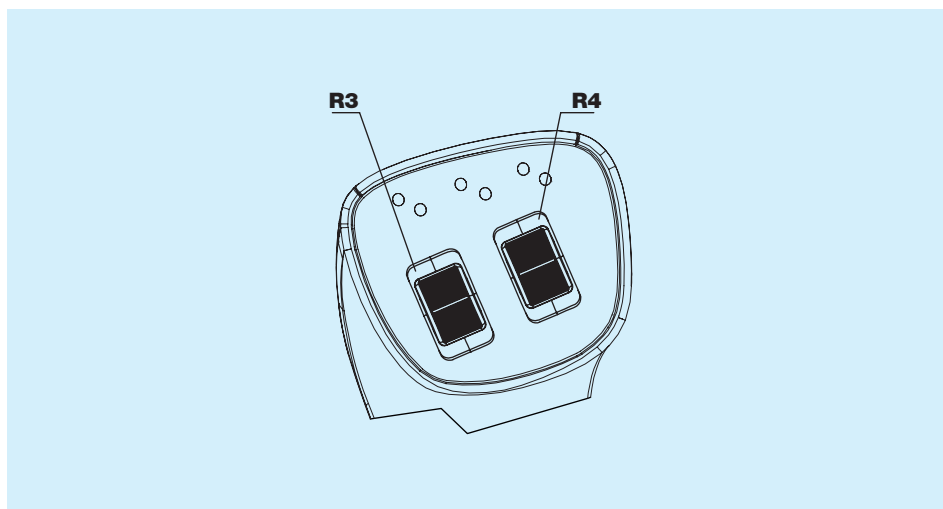
Front electrical controls and vertical roller



Configurations

Code	Description
436	R3+S2+S3+S5+S6
400	R3
424	R3+S3+S6

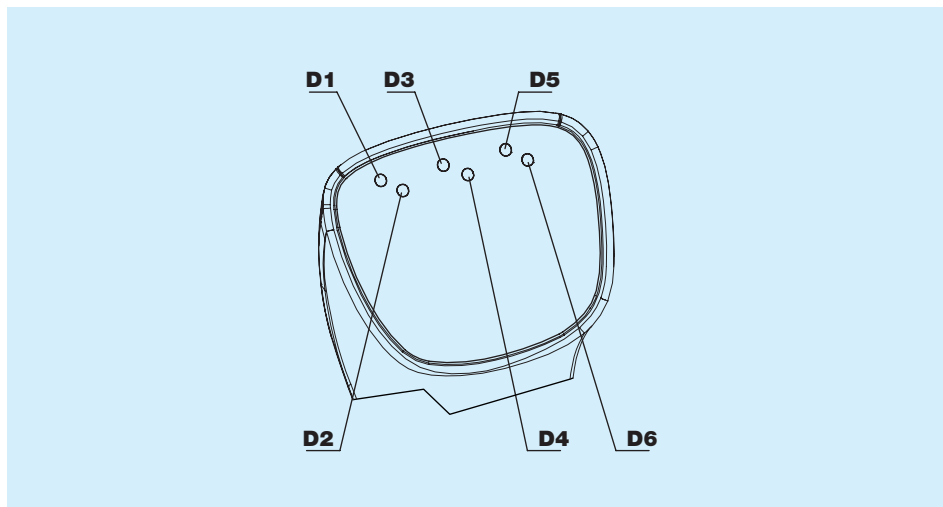
Double vertical roller



Configurations

Code	Description
C00	R3+R4
400	R3
800	R4

Front LEDs

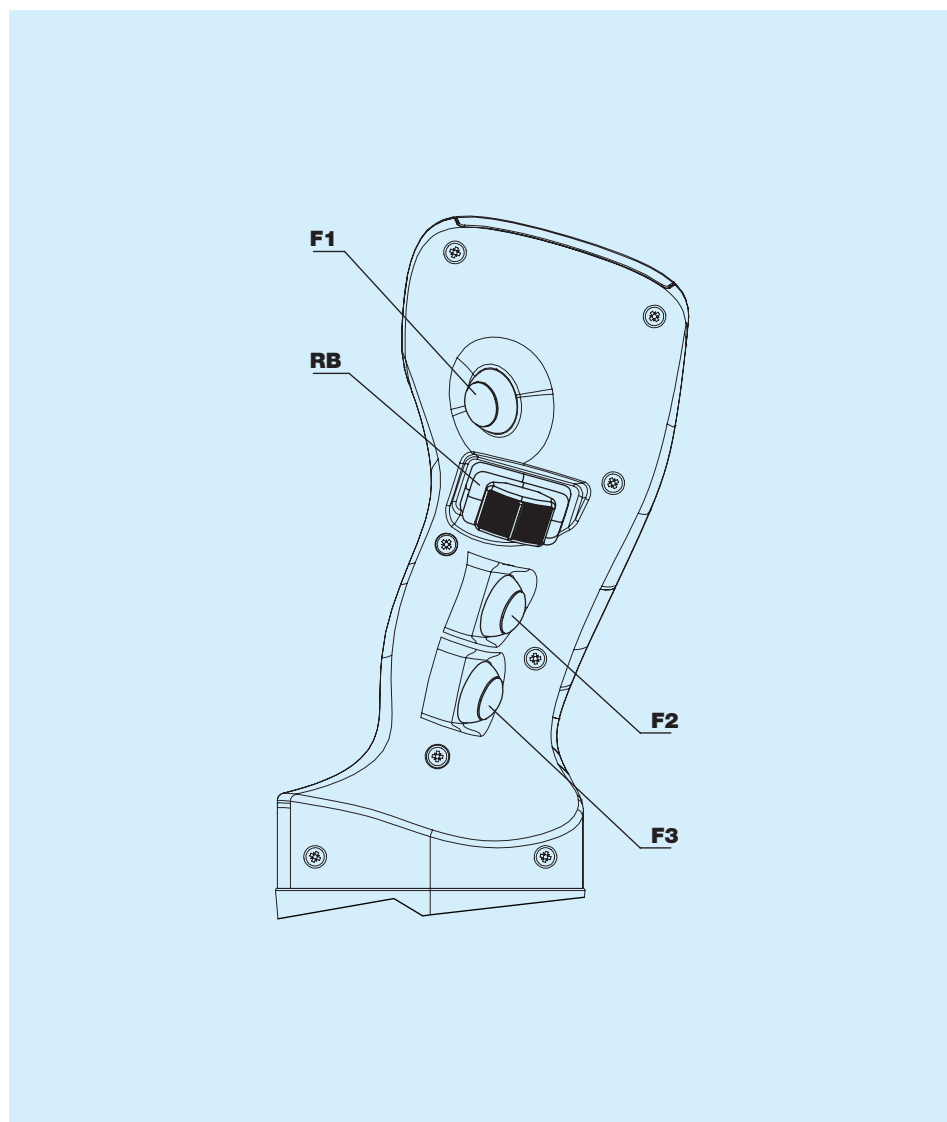


Configurations

Code	Description
00	no LED
3F	D1+D2+D3+D4+D5+D6
15	D1+D3+D5

Other single LED configurations are available. Contact the Sales Department.

Rear electrical controls



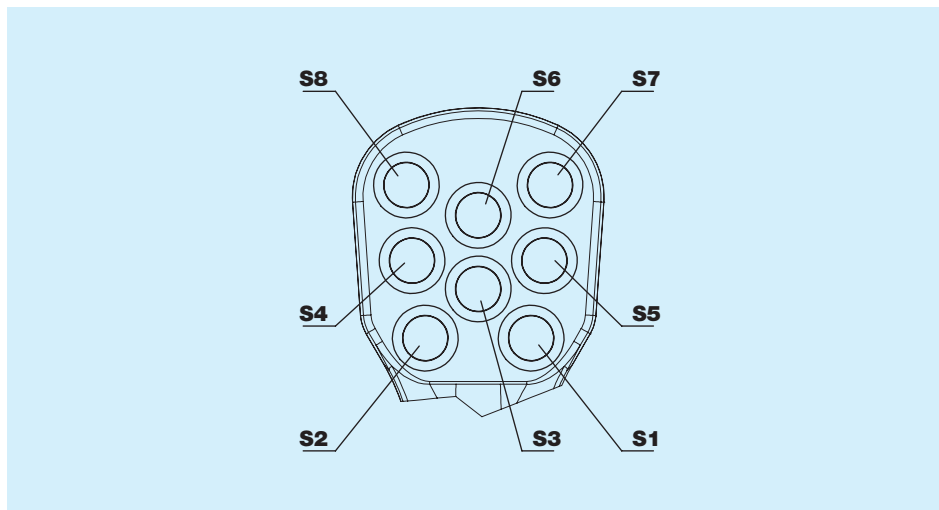
Configurations

Code	Description
3C	F1+F2+F3+RB
1C	F1+F2+F3
20	RB
04	F1
08	F2
10	F3

With P and Q grips, F2 and F3 not available.

Please contact the Sales Department for requests other than those listed in the catalogue.

Front electrical controls

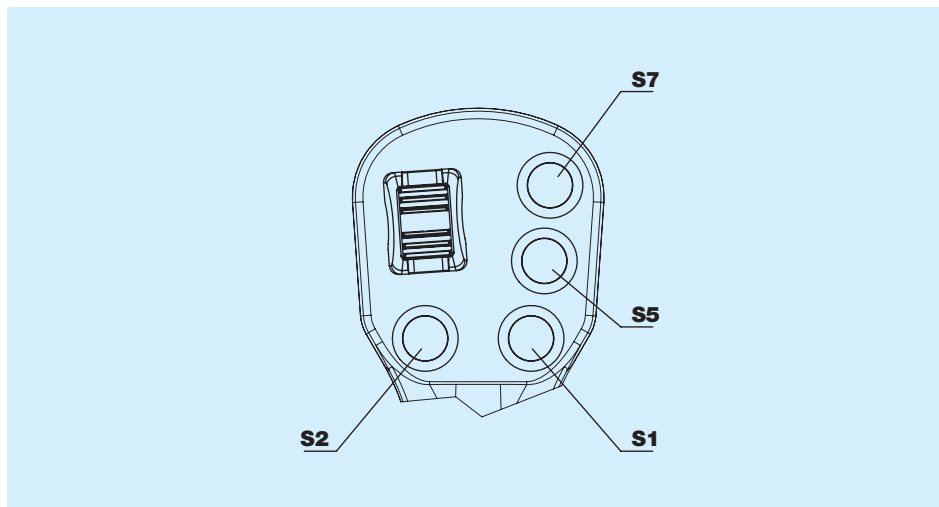


Configurations

Code	Description
08A	S2+S4+S8
051	S1+S5+S7
OFF	S1+S2+S3+S4+S5+S6+S7+S8

The maximum number of buttons available on the front of the JOY-3D is eight. It is also possible to realise all configurations with a lower number of controls. To find out the coding, please contact the sales department.

Front electrical controls and left roller

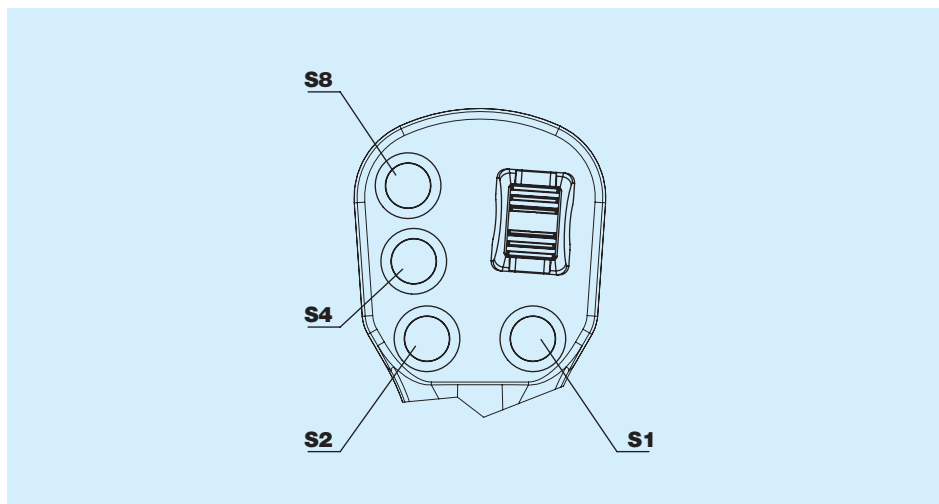


Configurations

Code	Description
200	left roller
253	left roller+S1+S2+S5+S7

It is possible to request a smaller number of buttons. Please contact the sales department.

Front electrical controls and right roller

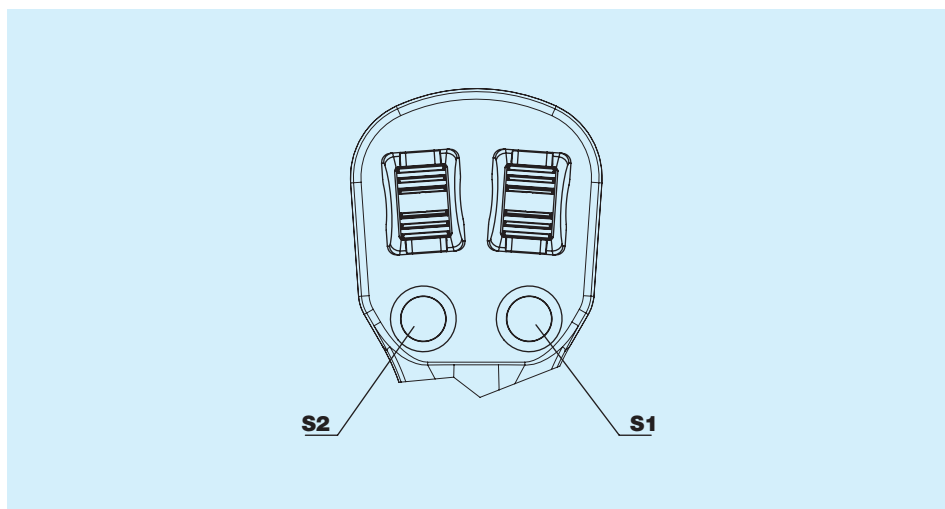


Configurations

Code	Description
100	right roller
18B	right roller+S1+S2+S4+S8

It is possible to request a smaller number of buttons. Please contact the sales department.

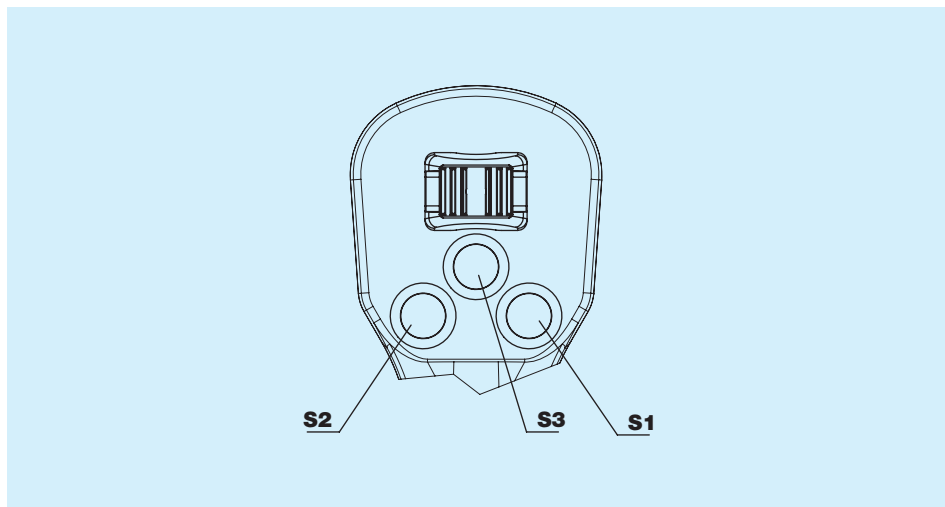
Front electrical controls with double vertical roller



Configurations

Code	Description
300	double vertical roller
301	double vertical roller+S1
302	double vertical roller+S2
303	double vertical roller+S1+S2

Front electrical controls and Roller Up

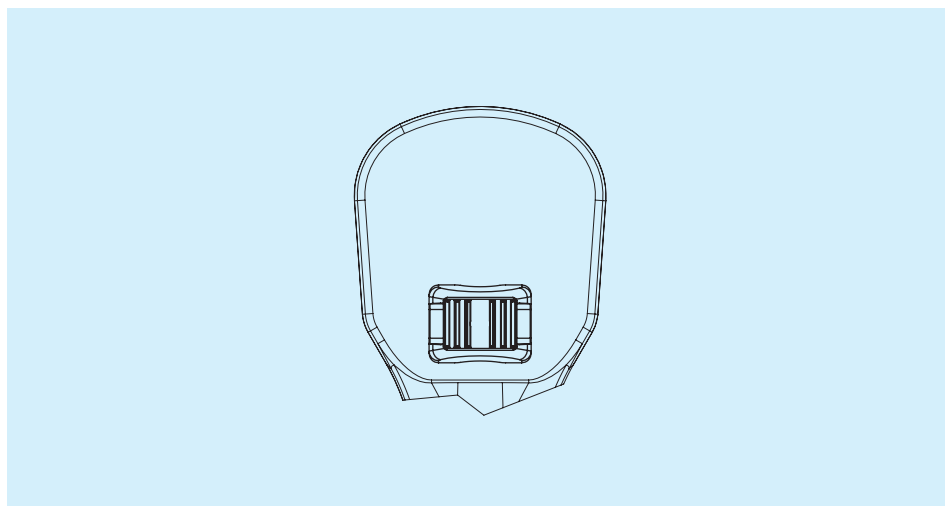


Configurations

Code	Description
400	roller up
403	roller up+S1+S2
404	roller up+S3
407	roller up+S1+S2+S3

Other three-button combinations are also available in combination with the roller up. Contact the Sales Department.

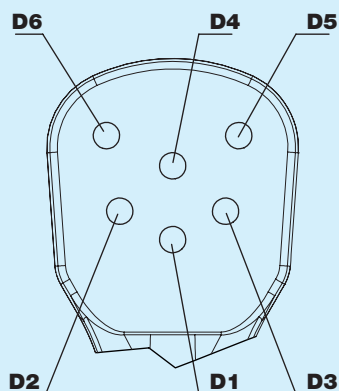
Front electrical roller down only control



Configurations

Code	Description
800	roller down

Front LEDs

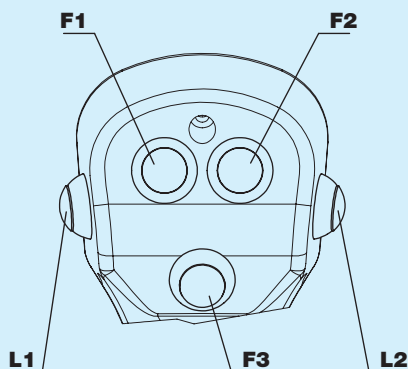


Configurations

Code	Description
00	no LED
21	D1+D6
3F	D1+D2+D3+D4+D5+D6

Other single LED configurations are available. Contact the Sales Department.

Rear electrical controls

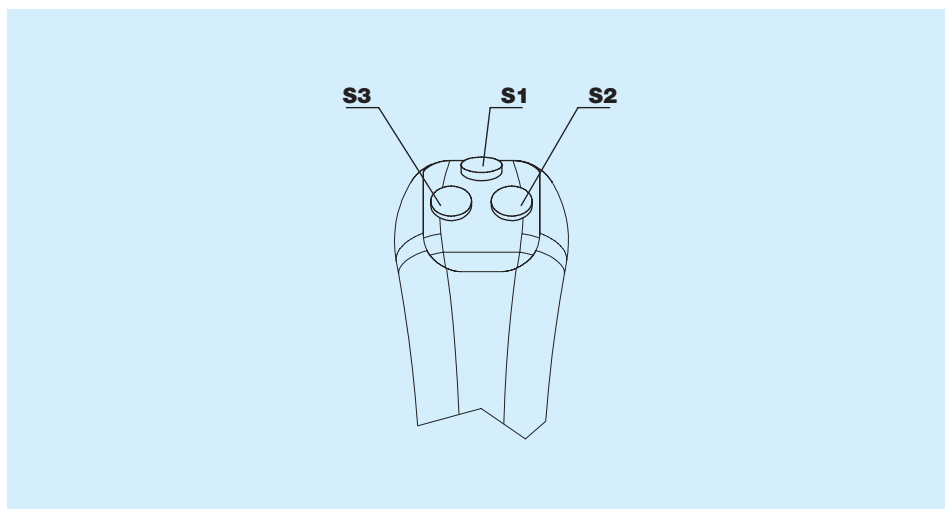


Configurations

Code	Description
01	L1
02	L2
03	L1+L2
0C	F1+F2
1C	F1+F2+F3
10	F3
0F	F1+F2+L1+L2
13	F3+L1+L2
1F	F1+F2+F3+L1+L2

Other five-button configurations are available.
Please contact the Sales Department.

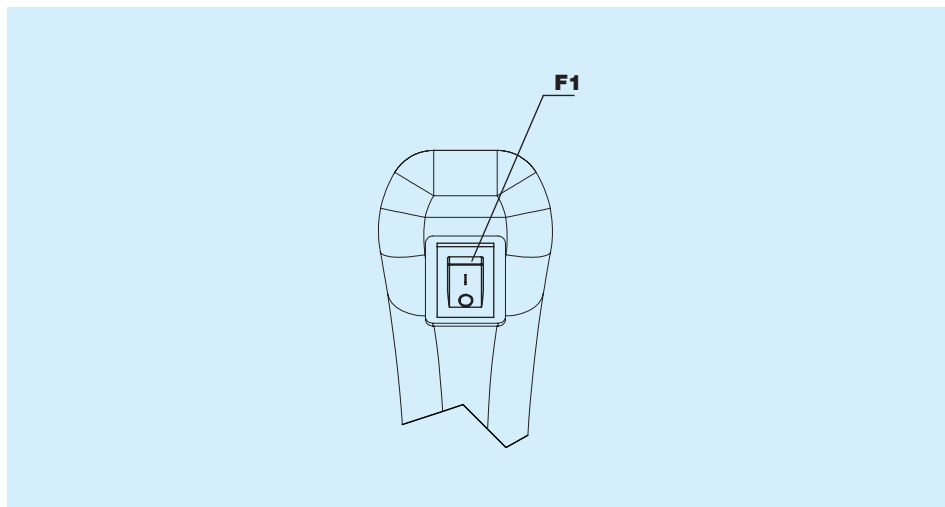
Front electrical controls



Configurations

Code	Description
000	No button
001	S1
006	S2+S3
007	S1+S2+S3

Rear electrical controls

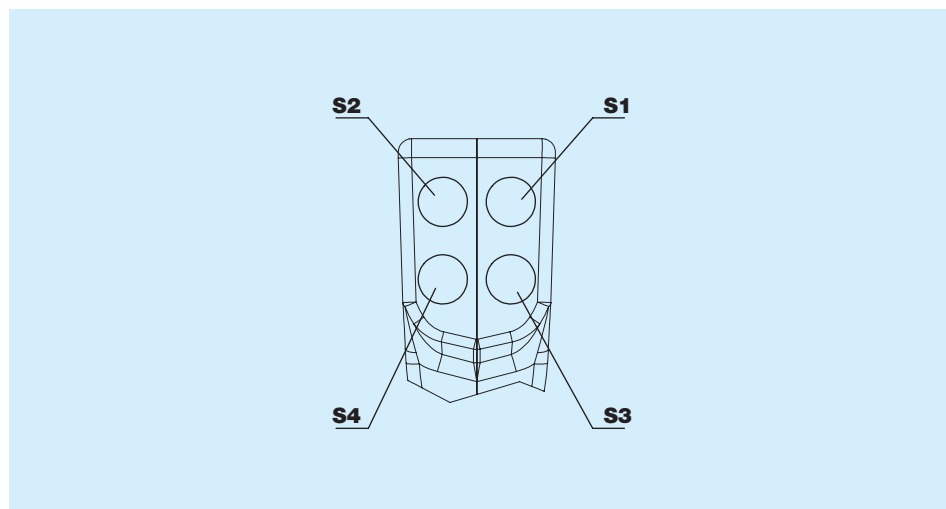


Configurations

Code	Description
00	No switch
04	F1 with spring return

Please contact the Sales Department for requests other than those listed in the catalogue.

Front electrical controls

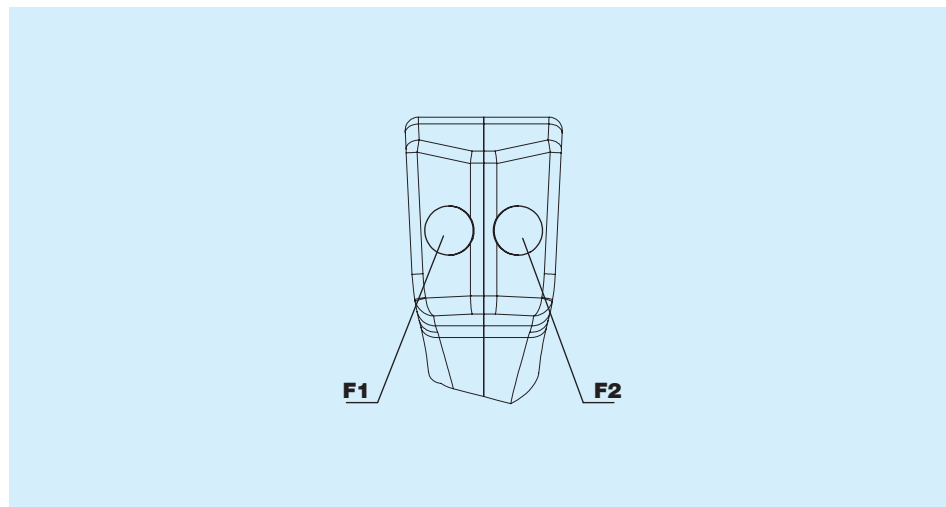


Configurations

Code	Description
000	No button
001	S1
002	S2
004	S3
008	S4
00F	S1+S2+S3+S4

Further combinations are possible for the front buttons, e.g. two-button or three-button. For coding, please contact the Sales Department.

Rear electrical controls



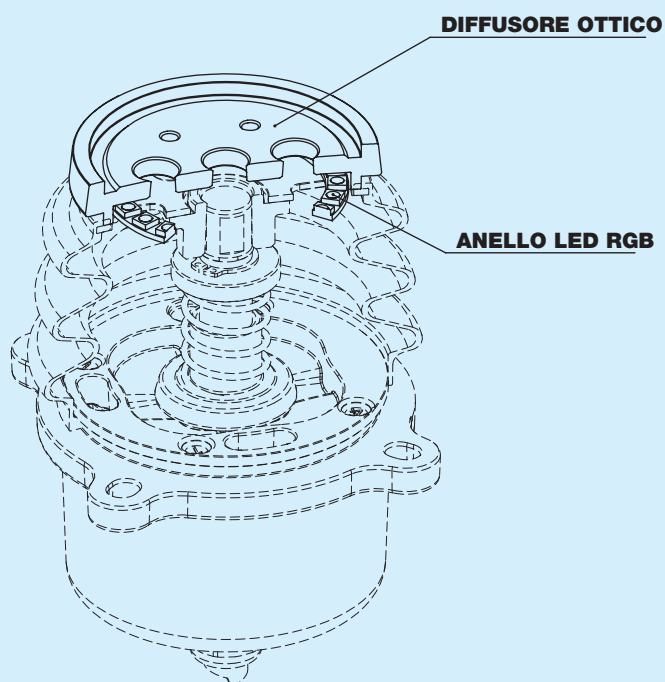
Configurations

Code	Description
00	No button
04	F1
08	F2
0C	F1+F2

Please contact the Sales Department for requests other than those listed in the catalogue.

RGB Crown

To make the user experience more complete, it is possible to request the “RGB crown” option. It provides a crown of independent LEDs around the base, which can be activated with different colours and intensities so as not to disturb when working at night or in dark conditions. Colours can be customised according to the specific needs of each customer. For example, they can be coded in conjunction with alarms: This gives the operator immediate visual feedback on the operating status of the machine.

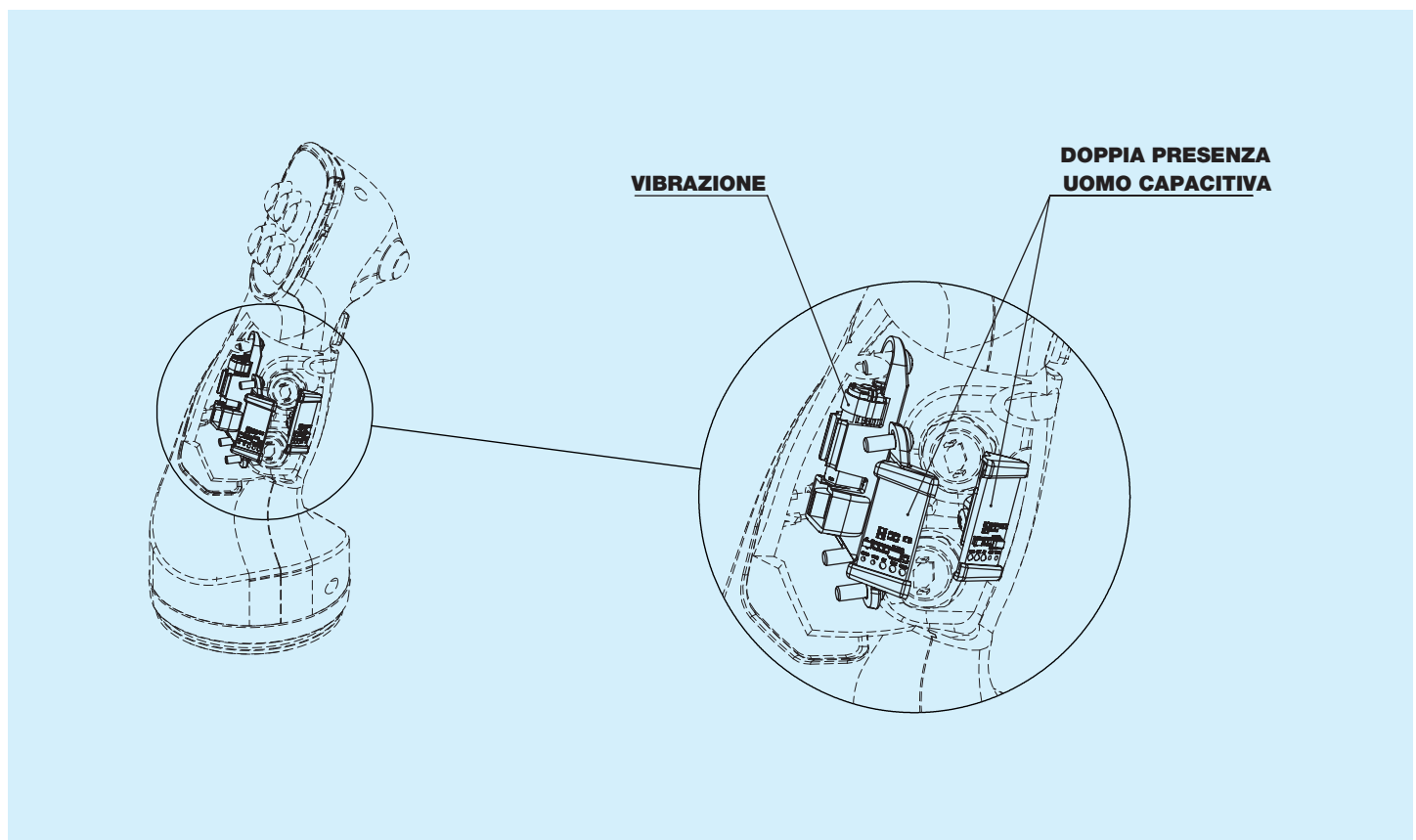


Grip vibration

The optional integrated vibration function is possible on request: Depending on the working conditions and/or instructions received via CAN-Bus, JOY-3D can make the grip vibrate continuously or intermittently, slowly or quickly, using a small, high-performance electric motor; for more information on managing the vibration option, please contact the Technical Sales Department.

Capacitive deadman

With some grips it is possible to request the optional feature for the capacitive detection of the operator's hand on the grip ("Deadman" function): there is a sensor inside the grip, at the point where the operator places his palm, the power and directionality of which ensure that the hand is detected even when wearing heavy work gloves. Thanks to this technology, the working comfort of JOY-3D is even further guaranteed. For more information, please contact the Sales Department.

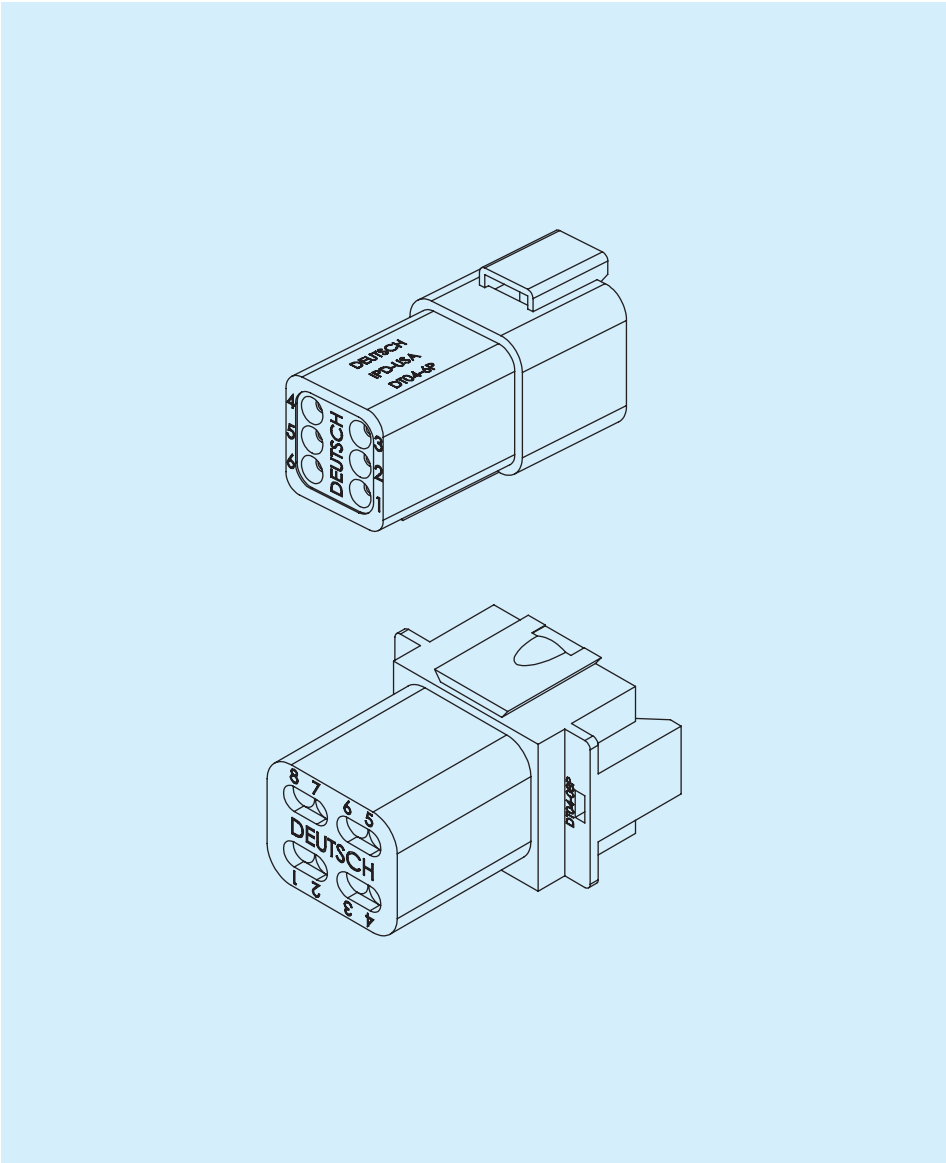


HS digital outputs

On request, the joystick can be configured to directly manage one or two digital ON/OFF outputs, which can be used to control external power relays.

The outputs are of the HS (high side) type and are activated externally via a CAN-Bus message.

A DT04-08P connector is used in the case of configuration with Low Power HS outputs.



DT04-6P	Pinout
1	Ground (-)
2	Power (+)
3	Vkey
4	CAN Shield (-)
5	CAN_L
6	CAN_H
Mating connector:	DT06-6S

DT04-8P	Pinout
1	Ground (-)
2	Power (+)
3	Vkey
4	CAN Shield (-)
5	CAN_L
6	CAN_H
7	Out_Low-P-1
8	Out_Low-P-2
Mating connector:	DT06-8S

An internal terminating resistor for the CAN-Bus network is not integrated in the JOY-3D.

EJM1 Extended Joystick Message PGN 64983d (0xFDD7)																																
byte #	1							2							3							4										
bit #	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1
	Roller_1 Position (LSB)		Roller_1 Up Positive position		Roller_1 Down Negative position		Roller_1 neutral position		Roller_1 Position (MSB)							Roller_2 Position (LSB)		Roller_2 Up Positive position		Roller_2 Down Negative position		Roller_2 neutral position		Roller_2 Position (MSB)								
	i	j							A	B	C	D	E	F	G	H	i	j							a	b	c	d	e	f	g	h
byte #	5							6							7							8										
bit #	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1
	Roller_3 Position (LSB)		Roller_3 Up Positive position		Roller_3 Down Negative position		Roller_3 neutral position		Roller_3 Position (MSB)							Roller_1 Detent Position		Roller_2 Detent Position		Roller_3 Detent Position		not used always 11b		Not Used Always 0xFF								
	i	j							a	b	c	d	e	f	g	h																

Communication Protocol - Accessories

OCJM1 Options Commands Joystick Message 1 ID 0x0CEF--F9(1) (1) according to SAE-J1939 standard this message must be referred to the specific Joystick address: 0x0CEF80F9 or 0x0CEF81F9 or 0x0CEF82F9 or 0x0CEF83F9 or ...								
byte #	1	2	3	4	5	6	7	8
REF	OFFSET	DATA LENGTH LSB	DATA LENGTH MSB	COMMAND TYPE	COMMAND DATA 1	COMMAND DATA 2	COMMAND DATA 3	COMMAND DATA 4
	0x00 (first message)	0x0D	0x00	0x20	NOT USED 0xFF	NOT USED 0xFF	NOT USED 0xFF	Handle Vibration intensity 0x00 -> OFF 0xFA -> 100%
byte #	1	2	3	4	5	6	7	8
REF	OFFSET	COMMAND DATA 5	COMMAND DATA 6	COMMAND DATA 7	COMMAND DATA 8	COMMAND DATA 9	COMMAND DATA 10	COMMAND DATA 11
	0x01 (second message)	Low Power driver #1 level 0x00 -> OFF 0xFA -> 100%	Low Power driver #2 level 0x00 -> OFF 0xFA -> 100%	Low Power driver #3 level 0x00 -> OFF 0xFA -> 100%	Low Power driver #4 level 0x00 -> OFF 0xFA -> 100%	Low Power driver #5 level 0x00 -> OFF 0xFA -> 100%	Low Power driver #6 level 0x00 -> OFF 0xFA -> 100%	High Side Output #1 state 0x00 -> OFF 0xFF -> ON
byte #	1	2	3	4	5	6	7	8
REF	OFFSET	COMMAND DATA 12	CHECKSUM	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED
	0x02 (third message)	High Side Output #2 state 0x00 -> OFF 0xFF -> ON	bit XOR of Data Length, command type, command data 1 to 12	0xFF	0xFF	0xFF	0xFF	0xFF

OCJM1 Options Positive Answer (ACK) Joystick Message 1 ID 0x0CEF9--(1) (1) according to SAE-J1939 standard this message will be referred to the specific Joystick address: 0x0CEFF980 or 0x0CEFF981 or 0x0CEFF982 or 0x0CEFF983 or ...								
byte #	1	2	3	4	5	6	7	8
REF	OFFSET	DATA LENGTH LSB	DATA LENGTH MSB	COMMAND TYPE (XOR 80h)	CHECKSUM	NOT USED	NOT USED	NOT USED
	0x00 (Single message)	0x01	0x00	0xA0	0xA1	0xFF	0xFF	0xFF

OCJM1 Options Negative Answer (NACK) Joystick Message 1 ID 0x0CEF9--(1) (1) according to SAE-J1939 standard this message will be referred to the specific Joystick address: 0x0CEFF980 or 0x0CEFF981 or 0x0CEFF982 or 0x0CEFF983								
byte #	1	2	3	4	5	6	7	8
REF	OFFSET	DATA LENGTH LSB	DATA LENGTH MSB	NACK BYTE	COMMAND TYPE	NACK Reason	CHECKSUM	NOT USED
	0x00 (Single message)	0x03	0x00	0xFE	0x20	0x00 (invalid command)	bit XOR of Data Length, NACK Byte, Command Type, NACK Reason	0xFF

Example: Command to Joystick #2

- 1 - Handle vibration intensity ON at 80%
- 2- Low Power driver #1-2-6 ON at 50% and #3-4-5 OFF
- 3- High Side Output #1 ON #2 OFF

Command message

ID 0x0CEF81F9 data 0x00 0x0D 0x00 0x20 0xFF 0xFF 0xFF 0xC8
 ID 0x0CEF81F9 data 0x01 0x7D 0x7D 0x00 0x00 0x00 0x7D 0x55
 ID 0x0CEF81F9 data 0x02 0xE0 0xFF 0xFF 0xFF 0xFF 0xFF 0xFF

Example: positive answer from joystick #2

Answer message ACK

ID 0x0CEFF981 data 0x00 0x01 0x00 0xA0 0xA1 0xFF 0xFF 0xFF

Example: negative answer from Joystick #2

Answer Message NACK

ID 0x0CEFF981 data 0x00 0x03 0x00 0xFE 0x20 0x00 0x1A 0xFF

Transmission speed: 100 ms. In the event of a timeout (1200 ms) all outputs will be switched off.

OCJM2 Options Commands Joystick Message 2 ID 0x0CEF--F9(1)								
(1) according to SAE-J1939 standard this message must be referred to the specific Joystick address: 0x0CEF80F9 or 0x0CEF81F9 or 0x0CEF82F9 or 0x0CEF83F9 or ...								
byte #	1	2	3	4	5	6	7	8
REF	OFFSET	DATA LENGTH LSB	DATA LENGTH MSB	COMMAND TYPE	COMMAND DATA 1	COMMAND DATA 2	COMMAND DATA 3	COMMAND DATA 4
	0x00 (first message)	0x19	0x00	0x1F	LED #1 command byte bit meaning: rrgggbb 0x00 -> OFF 0x01 -> RED 0x02 -> GREEN 0x03 -> BLUE 0xFF -> WHITE	LED #2 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #3 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #4 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE
byte #	1	2	3	4	5	6	7	8
REF	OFFSET	COMMAND DATA 5	COMMAND DATA 6	COMMAND DATA 7	COMMAND DATA 8	COMMAND DATA 9	COMMAND DATA 10	COMMAND DATA 11
	0x01 (second message)	LED #5 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #6 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #7 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #8 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #9 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #10 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #11 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE
byte #	1	2	3	4	5	6	7	8
REF	OFFSET	COMMAND DATA 12	COMMAND DATA 13	COMMAND DATA 14	COMMAND DATA 15	COMMAND DATA 16	COMMAND DATA 17	COMMAND DATA 18
	0x02 (third message)	LED #12 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #13 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #14 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #14 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #15 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #16 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #17 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE
byte #	1	2	3	4	5	6	7	8
REF	OFFSET	COMMAND DATA 19	COMMAND DATA 20	COMMAND DATA 21	COMMAND DATA 22	COMMAND DATA 23	COMMAND DATA 24	CHECKSUM
	0x03 (fourth message)	LED #19 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #20 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #21 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #22 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #23 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	LED #24 command byte bit meaning: rrgggbb 0x00 -> OFF 0xFF -> WHITE	bit XOR of Data Length, command type, command data 1 to 24
OCJM2 Options Positive Answer (ACK) Joystick Message 1 ID 0x0CEFF9--(1)								
(1) according to SAE-J1939 standard this message will be referred to the specific Joystick address: 0x0CEFF980 or 0x0CEFF981 or 0x0CEFF982 or 0x0CEFF983 or ...								
byte #	1	2	3	4	5	6	7	8
REF	OFFSET	DATA LENGTH LSB	DATA LENGTH MSB	COMMAND TYPE (XOR 80h)	CHECKSUM	NOT USED	NOT USED	NOT USED
	0x00 (Single message)	0x01	0x00	0x9F	0x9E	0xFF	0xFF	0xFF
OCJM2 Options Negative Answer (NACK) Joystick Message 1 ID 0x0CEFF9--(1)								
(1) according to SAE-J1939 standard this message will be referred to the specific Joystick address: 0x0CEFF981 or 0x0CEFF982 or 0x0CEFF983								
byte #	1	2	3	4	5	6	7	8
REF	OFFSET	DATA LENGTH LSB	DATA LENGTH MSB	NACK BYTE	COMMAND TYPE	NACK Reason	CHECKSUM	NOT USED
	0x00 (Single message)	0x03	0x00	0xFE	0x1F	0x00 (invalid command)	bit XOR of Data Length, NACK Byte, Command Type, NACK Reason	0xFF
Example: Command to Joystick #2 1- RGB ring: ON with all 60% RED Command message ID 0x0CEF82F9 data 0x00 0x19 0x00 0x1F 0x86 0x86 0x86 0x86 ID 0x0CEF82F9 data 0x01 0x86 0x86 0x86 0x86 0x86 0x86 0x86 ID 0x0CEF82F9 data 0x02 0x86 0x86 0x86 0x86 0x86 0x86 0x86 ID 0x0CEF82F9 data 0x03 0x86 0x86 0x86 0x86 0x86 0x86 0x06								
Example: positive answer from joystick #2 Answer message ACK ID 0x0CEFF982 data 0x00 0x01 0x00 0x9F 0x9E 0xFF 0xFF 0xFF								
Example: negative answer from Joystick #2 Answer Message NACK ID 0x0CEFF982 data 0x00 0x03 0x00 0xFE 0x1F 0x00 0xE2 0xFF								
Example: Command to Joystick #1 1- RGB arc: ON with LED#1 100% WHITE, LED#2 100% CYAN, LED#3 100% BLUE, LED#4 100% MAGENTA, LED#5 100% RED, LED#6 100% YELLOW, LED#7 100% GREEN Command message ID 0x0CEF81F9 data 0x00 0x19 0x00 0x1F 0xFF 0x1F 0x03 0xE3 ID 0x0CEF81F9 data 0x01 0xE0 0xFC 0x1C 0xFF 0xFF 0xFF 0xFF ID 0x0CEF81F9 data 0x02 0xFF 0xFF 0xFF 0xFF 0xFF 0xFF 0xFF ID 0x0CEF81F9 data 0x03 0xFF 0xFF 0xFF 0xFF 0xFF 0xFF 0xFF								
Example: positive answer from joystick #1 Answer message ACK ID 0x0CEFF981 data 0x03 0xFF 0xFF 0xFF 0xFF 0xFF 0xFF 0xFF								
Example: negative answer from Joystick #1 Answer Message NACK ID 0x0CEFF981 data 0x00 0x03 0x00 0xFE 0x1F 0x00 0xE2 0xFF								

Transmission speed: 100 ms. In the event of a timeout (1200 ms) all RGB LEDs will be switched off.
This message will only be sent if the LED ring or arc is to be controlled.

Communication Protocol - Diagnosis

The JOY-3D performs various diagnostic functions and, based on the SAE-J1939 standard, can transmit the following information via DM1 message (PGN0xFECA); If several diagnoses are active at the same time, they are transmitted in a series of messages identifying all active diagnoses.

DIAGNOSI NECESSARIE DA NORMATIVA SAEJ1939			
PGN	SPN	FMI	DESCRIPTION
64982 (BJM1)	2675	10	Ctrl 3D SensorError
	2670	10	
	2665	10	
	2660	10	
	2676	10	
	2671	10	
	2666	10	
	2661	10	
64982 (BJM1)	2675	2	Main Safety 3D Sensor Error
	2670	2	
	2665	2	
	2660	2	
	2676	2	
	2671	2	
	2666	2	
64982 (BJM1)	2661	2	
	2675	11	Coerenza Sensori
	2670	11	
	2665	11	
	2660	11	
	2676	11	
	2671	11	
64983 (EJM1)	2666	11	
	2661	11	
	2677	2	Roller1 Error
	2672	2	
64983 (EJM1)	2667	2	
	2662	2	
64983 (EJM1)	2678	2	Roller2 Error
	2673	2	
	2668	2	
	2663	2	
64983 (EJM1)	2679	2	Roller3 Error
	2674	2	
	2669	2	
	2664	2	
64982 (BJM1)	2675	13	Main 3d Sensor not calib
	2670	13	
	2665	13	
	2660	13	
	2676	13	
	2671	13	
	2666	13	
64983 (EJM1)	2661	13	
	2677	3	Aninp0_ToHigh
	2672	3	
	2667	3	
64983 (EJM1)	2662	3	
	2677	4	Aninp0_ToLow
	2672	4	
	2667	4	
64983 (EJM1)	2662	4	
	2678	3	Aninp1_ToHigh
	2673	3	
	2668	3	
	2663	3	

DIAGNOSI NECESSARIE DA NORMATIVA SAEJ1939			
PGN	SPN	FMI	DESCRIPTION
64983 (EJM1)	2678	4	Aninp1_ToLow
	2673	4	
	2668	4	
	2663	4	
64983 (EJM1)	2679	3	Aninp2_ToHigh
	2674	3	
	2669	3	
	2664	3	
64983 (EJM1)	2679	4	Aninp2_ToLow
	2674	4	
	2669	4	
	2664	4	
64983 (EJM1)	2677	0	Aninp3_ToHigh
	2672	0	
	2667	0	
	2662	0	
64983 (EJM1)	2677	1	Aninp3_ToLow
	2672	1	
	2667	1	
	2662	1	
64983 (EJM1)	2678	0	Aninp4_ToHigh
	2673	0	
	2668	0	
	2663	0	
64983 (EJM1)	2678	1	Aninp4_ToLow
	2673	1	
	2668	1	
	2663	1	
64983 (EJM1)	2679	0	Aninp5_ToHigh
	2674	0	
	2669	0	
	2664	0	
64983 (EJM1)	2679	1	Aninp5_ToLow
	2674	1	
	2669	1	
	2664	1	

DIAGNOSI FACOLTATIVE			
PGN	SPN	FMI	DESCRIPTION
65271 (VEP)	168	3	VBattToHigh
65271 (VEP)	168	4	VBattToLow
65241 (AUXIO)	701	3	Out0 cc
65241 (AUXIO)	701	4	Out0 ca
65241 (AUXIO)	702	3	Out1 cc
65241 (AUXIO)	702	4	Out1 ca
PGN INESISTENTE	xxx	xxx	Can Network

Joystick JOY-3D

Rated voltage			9-32 V	MTTF	18 years with an operating profile of 18.26% (8 hours a day, 5 days a week, 200 days/year) referred to operating conditions
Power consumption	Stand-by	< 2.0 W			
	Max (with RGB LED crown on the base)	7.0 W			
	Max (with RGB LED crown on the base and two active Low Power outputs)	80.0 W			
Can Bus Port	1	CAN 2.0 B, SAE-J1939 without terminating resistor			

	1	2	3	4	5	6	7	8	9	10	11	12	13	14																				
HPEG																																		
1	Grips <table border="0"> <tr> <td>S Anatomic</td> <td>T Multifunctional</td> <td>L EVO left</td> </tr> <tr> <td>E Ergonomic</td> <td>H Multifunctional Deadman</td> <td>P EVO right deadman</td> </tr> <tr> <td>F Ergonomic deadman</td> <td>R EVO right</td> <td>Q EVO left deadman</td> </tr> </table>														S Anatomic	T Multifunctional	L EVO left	E Ergonomic	H Multifunctional Deadman	P EVO right deadman	F Ergonomic deadman	R EVO right	Q EVO left deadman											
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4 5 6	Front electrical controls <table border="0"> <tr> <td>000 No button</td> <td>... See Grips pages</td> </tr> </table>														000 No button	... See Grips pages																		
000 No button	... See Grips pages																																	
7 8	Rear and side electrical controls <table border="0"> <tr> <td>00 No switch</td> <td>... See grips pages</td> </tr> </table>														00 No switch	... See grips pages																		
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9	Options 1 - RGB-Vibro-Capacitive Sensor <table border="0"> <tr> <td>A Without options</td> <td>F RGB Crown + Capacitive Sensor</td> <td>L RGB band + front capacitive sensor (*)</td> <td>R RGB crown + Grip vibration + Double capacitive sensor (*)</td> </tr> <tr> <td>B RGB Crown</td> <td>G Grip vibration + Capacitive sensor</td> <td>M RGB band + Grip vibration + Capacitive sensor (*)</td> <td>S RGB band + Double capacitive sensor (*)</td> </tr> <tr> <td>C Grip vibration</td> <td>H RGB crown + Grip vibration + Capacitive sensor</td> <td>N Double capacitive sensor (*)</td> <td>T RGB band + Grip vibration + Double capacitive sensor (*)</td> </tr> <tr> <td>D Capacitive sensor</td> <td>J RGB band (*)</td> <td>P Grip vibration + Double capacitive sensor (*)</td> <td></td> </tr> <tr> <td>E RGB Crown + Grip Vibration</td> <td>K RGB band + Grip Vibration (*)</td> <td>Q RGB Crown + Double capacitive sensor (*)</td> <td>(*) For EVO grip only</td> </tr> </table>														A Without options	F RGB Crown + Capacitive Sensor	L RGB band + front capacitive sensor (*)	R RGB crown + Grip vibration + Double capacitive sensor (*)	B RGB Crown	G Grip vibration + Capacitive sensor	M RGB band + Grip vibration + Capacitive sensor (*)	S RGB band + Double capacitive sensor (*)	C Grip vibration	H RGB crown + Grip vibration + Capacitive sensor	N Double capacitive sensor (*)	T RGB band + Grip vibration + Double capacitive sensor (*)	D Capacitive sensor	J RGB band (*)	P Grip vibration + Double capacitive sensor (*)		E RGB Crown + Grip Vibration	K RGB band + Grip Vibration (*)	Q RGB Crown + Double capacitive sensor (*)	(*) For EVO grip only
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11	Options 3 - CAN-BUS protocol <table border="0"> <tr> <td>A Standard SAE-J1939</td> <td>B Custom protocol</td> <td>C ISOBUS ISO11783</td> <td>D CAN-Open (on demand)</td> </tr> </table>														A Standard SAE-J1939	B Custom protocol	C ISOBUS ISO11783	D CAN-Open (on demand)																
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13 14	Single LED configuration <table border="0"> <tr> <td>00 No LED</td> <td>... See related pages</td> </tr> </table>														00 No LED	... See related pages																		
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