



# PALM GRIP JOYSTICKS





# ERGONOMIC WITH PRECISION

Our palm grip joysticks are designed with particular emphasis on operator comfort and precision control.

After decades of experience working with joysticks, our technical advisers are well placed to supply customers with the ideal solution for their individual needs, and always with a variety of CAN bus options.

It is used across a spectrum of applications, from the toughest working environments to exquisitely high precision, fine-tuned medical equipment.

The joystick can be fitted with numerous grips, functions and withstand the harshest conditions for your application, as it is available with high protection class and is customisable to the fullest.

Caldaro defines a joystick as a two-part module: the joystick base and the joystick grip attached to the base. The C14 joystick is best combined with our Viper grips.



# C15: A WORK OF JOY

Protected electronics. Circuit board and electronics are potted with a silicone compound that protects them from threats such as salt, mist, water, lubricants and virtually all chemicals.

A strong shaft. Manufactured in one single piece and with extended dimensions. This makes it practically impossible to bend.

The best material have been chosen for each component.  
The rubber mixture endures the toughest conditions.

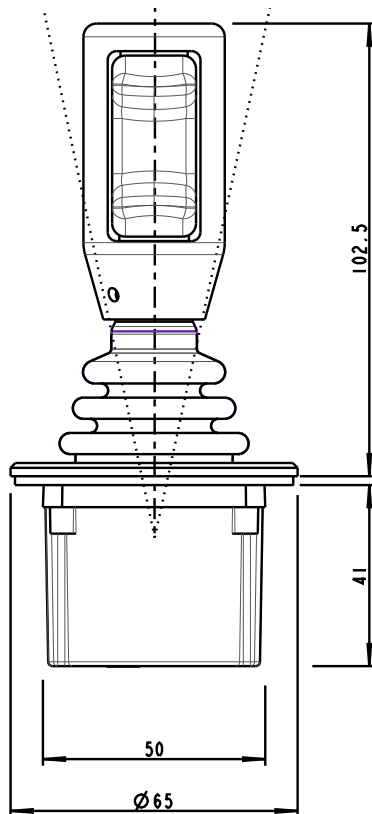
Full redundancy with direction switches, using double or double independent output signals. The C15 is also available with CAN interface.

Adding operator feeling. Fully customisable feeling with Guide feeling, optional spring force and Over-press feature.

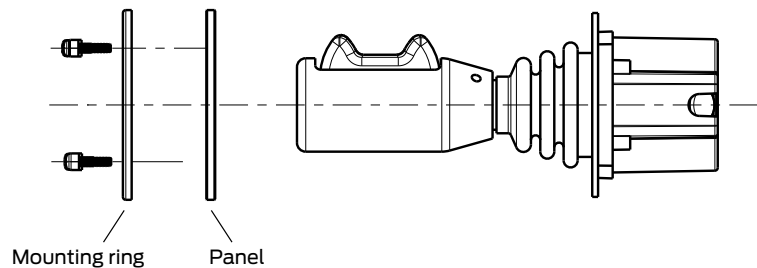
Proportional axis. Choose between 1, 2 or 3 axis to be operated in  $\pm 9$ , 12, 17 and 20.



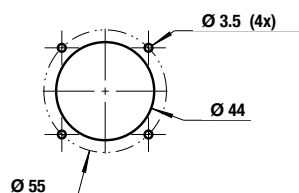
**Standard dimensions**



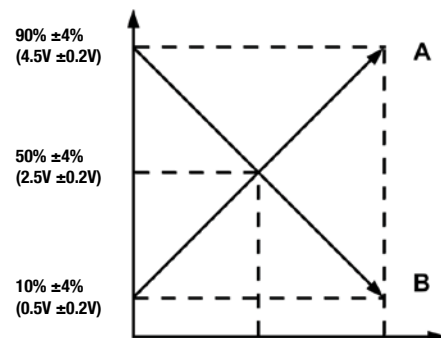
**Mounting arrangement**



**Panel cutout**



**Example of output signal**





## MECHANICAL SPECIFICATIONS

Life expectancy: 10 000 000 operations

Mechanical angle two axis:  $\pm 9^\circ$ ,  $\pm 12^\circ$ ,  $\pm 17^\circ$  or  $\pm 20^\circ$

Mechanical angle one axis:  $\pm 12^\circ$  or  $\pm 20^\circ$  (X or Y)

Lever strength: max 500N Static load

Break out force: 1N or 1,7N or 2,5N or 3,8N  
(Depending on spring force)

## ENVIRONMENTAL SPECIFICATIONS

Storage temperature:  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$  ( $-40^\circ\text{F}$  to  $185^\circ\text{F}$ )

Operating temperature:  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$  ( $-40^\circ\text{F}$  to  $185^\circ\text{F}$ )

Sealing: IP67 (above panel subject to handle and final specification)

EMC: 100V/M

ESD:  $\pm 8\text{kV}$  (contact discharge)  $\pm 15\text{kV}$  (air discharge)

## ELECTRICAL SPECIFICATIONS: ANALOG

Effective output standard 10%–90%  $V_{in}$

Total current consumption: 17–22mA

Power supply: 5VDC  $\pm 10\%$  (regulated)

Recommended load resistance 4,7k $\Omega$ –100k $\Omega$  pull down

## ELECTRICAL SPECIFICATIONS: CAN

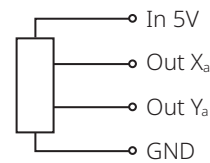
Power supply: 9–32VDC

Baud rate: 125, 250, 500 Kbit/s

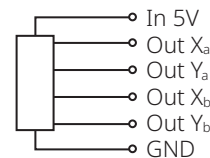
Transmission rate: 10, 20, 50ms

## OUTPUT OPTIONS

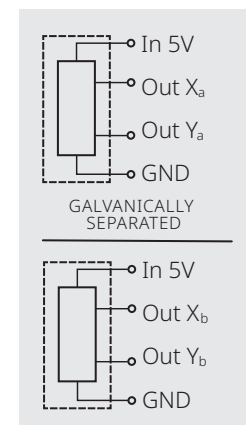
### SINGLE OUTPUT



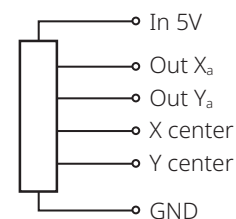
### DUAL OUTPUT



### DUAL INDEPENDENT OUTPUT



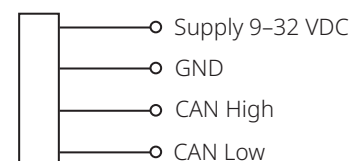
### SINGLE + DIGITAL OUTPUT\*



\*Centre validation signal 1 per axis (please consult Caldaro)

### CAN INTERFACE

CANopen, CANopen Safety or J1939 protocol



Available with direction or centre Switch function (please consult Caldaro)



# COMBINE THE CIS WITH VIPER, LION OR A VARIETY OF GECKO GRIPS

## THE VIPER SLIM GRIP

Viper Slim is a professional multifunction joystick that provides all necessary functions easily accessible to the operator's hand. It has a highly appreciated design that provides a natural grip for the operator's ergonomics and is used in many types of applications and special vehicles.

Configuration on image: 5 buttons, one sensor • A capacitive sensor for "operator presence" • 2-4-axis • Height 128 mm



## THE LION GRIP

The Lion grip is a multi-functional grip made for professional usage. First developed solely for mining applications. Made to endure the test of time and harsh conditions. It is available with two sliders on the front side, allowing the intuitive operation of a belt-driven machine. It can be found in mining applications, snow removal machines, cranes, and other special vehicles.

Configuration on image: 6 buttons + 2 sensors for 3rd and 4th axis • Sensors; a capacitive sensor for "operator presence" • Proportional sensors • 2-4-axis • Height 128 mm



# THE GECKO GRIPS SERIES

Our Grip series consists of a great variety of grips made to fit a great variety of machines. The grips in the Gecko series are commonly used with the C15 joystick and will give your machine perfect control. By machining the shape from a solid part, split lines can be avoided, providing a more comfortable and higher-quality appearance.



## GECKO A0

Configuration on image: Plain robust grip • Does not include any additional functionality • Height 97,4 mm



## GECKO A1

Configuration on image: 1 momentary push button • Button specifics are customized with NO/NC • Height 103 mm



## GECKO A2

Configuration on image: 2 momentary push buttons • Buttons specifics are customized with NO/NC • Height 110 mm



## GECKO A3

Configuration on image: 3 push momentary buttons • Buttons specifics are customized with NO/NC • Height 110 mm



## GECKO R0

Configuration on image: 1 Proportional Hall effect thumb rocker • Height 97,5 mm



### GECKO R1

Configuration on image: 1 Proportional Hall effect thumb rocker • 1 momentary push button • Button specifics are customized with NO/NC • Height 117 mm



### GECKO R1 LED

Configuration on image: 1 latching LED push button (Optional push button specifics: Icon etc) • 1 Proportional Hall effect thumb rocker • Height 128 mm



### GECKO R4+1

Configuration on image: 1 Proportional Hall effect thumb rocker • 4 momentary push buttons on front • 1 momentary push button on top (Optional push button specifics: NO/NC) • Height 126 mm



### GECKO R5

Configuration on image: 1 Proportional Hall effect thumb rocker • 5 momentary push buttons on front • Height 116 mm



### GECKO R7

Configuration on image: 1 Proportional Hall effect thumb rocker • 5 momentary push buttons on front • 2 momentary push buttons on rocker side • Height 116 mm



### GECKO R9

Configuration on image: 1 Proportional Hall effect thumb rocker • 5 momentary push buttons on front • 4 momentary push buttons on rocker side • Height 116 mm



### GECKO R12

Configuration on image: 1 Proportional Hall effect thumb rocker • 10 momentary push buttons on front • 2 momentary push buttons on rocker side • Height 116 mm



### GECKO W0

Configuration on image: 1 Rubber covered rocker button • Optional push button specifics: NO/NC • Height 114 mm



### GECKO W1

Configuration on image: 1 Rubber covered rocker button • 1 Rubber covered momentary push button • Optional push button specifics: NO/NC • Height 114 mm



### GECKO W1B

Configuration on image: 1 momentary rocker button • 1 momentary trigger button • Buttons specifics are customized with NO/NC • Height 114 mm



### GECKO W2

Configuration on image: 1 Rubber covered rocker button • 2 Rubber covered momentary push button • Optional push button specifics: NO/NC • Height 114 mm



### GECKO WR

Configuration on image: 1 Rubber covered rocker button (Optional push button specifics: NO/NC) • 1 Proportional Hall effect thumb rocker • Height 114 mm

# PREMIUM PRODUCTS



## INDUSTRIAL JOYSTICKS

Our full grip-sized industrial joysticks are designed to suit the most demanding heavy-duty applications in terms of mechanical strength and environmental requirements. Designed with the operator in focus, these joysticks are ergonomic and user-friendly, built for operating every productive hour.

Our palm grip joysticks are designed with particular emphasis on operator comfort and precision control. After decades of experience working with joysticks, our technical advisers are well placed to supply customers with the ideal solution for their individual needs, and always with various CAN bus options.

Our fingertip joysticks are designed for smooth operator control with high precision. These mini joysticks are often used in precision machines, forklifts and remote controls but can also be found in agricultural applications.

We can offer a wide range of joysticks with up to 5 analog axis and contactless redundant sensors.



## INDUSTRIAL PEDALS

Our specially designed foot pedals for heavy-duty throttle, brake and retardation control are as robust as they are precise. All our industrial pedals are designed and manufactured for the most demanding applications in harsh environments. The pedals withstand the toughest conditions in all surroundings for dependability and your safety.



## POSITION SENSORS

Caldaro has been supplying sensors since the early 80's. Initially, it was only potentiometers with wire-wound or conductive plastic in both rotating and linear versions. Currently, contactless technology (Hall effect and inductive) has evolved and is now used effectively in many different sensor types, both rotating and linear.

## MARINE CONTROLS

Real craftsmanship levers made by our specialist team in Flen. Every control lever has a smooth, elegant feeling and consists of small, moving parts that fit together intricately. All parts are custom-made, with no mass production. We have developed about 200 different variations for a great variety of marine and offshore applications since we started in 1985.

