



# Unbreakable

Caldaro tackled the challenge of constructing an unbreakable joystick. The result is the C15 which can be used across an application spectrum from the toughest working environments to exquisitely high precision fine-tuned medical equipment.

## A masterpiece of construction

- **Protected electronics** – Circuit board and electronics are potted with a compound which protects them from threats such as salt, mist, water, lubricants and virtually all chemicals.
- **The strongest shaft** – The shaft is manufactured in one single piece with extended dimensions, which makes it practically impossible to bend.
- **The best materials** – The best material has been chosen for each component. The rubber mixture endures the toughest conditions.
- **Full redundancy** – The C15 offers single, single + direction switches and dual or double independent sensors.

## Other features making C15 irresistible:

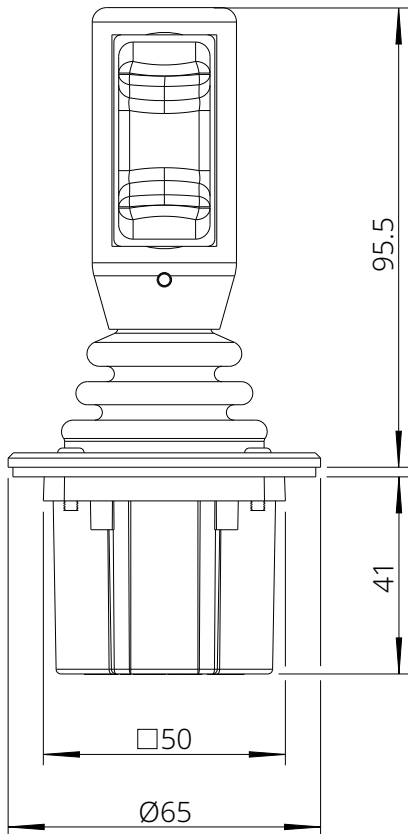
- Guide feeling
- Operating angles 9, 12 or 20 degrees
- Sealed panel mounting
- Made in Sweden

The C15 is available with a palette of handles to be suitable for every situation. We can do custom-made handles even with a relatively small production batch; see the below examples.

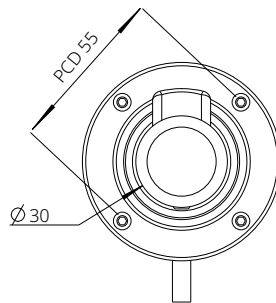
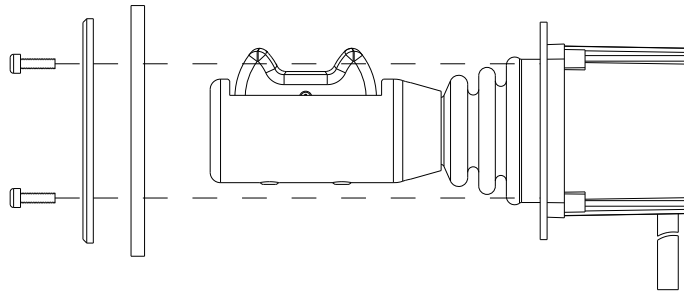


# JOYSTICK C15

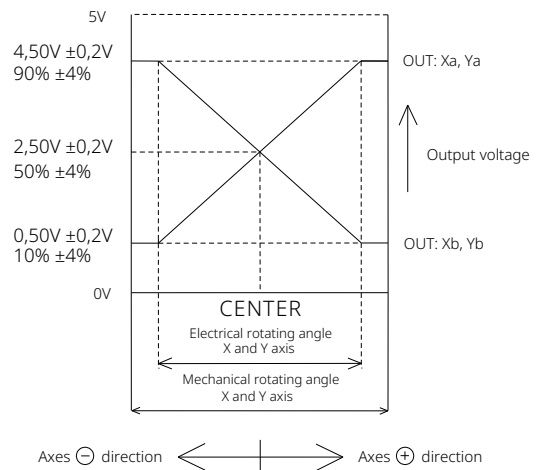
## STANDARD DIMENSIONS



## MOUNTING ARRANGEMENT



## OUTPUT CHARACTERISTICS



## SPECIFICATIONS

### MECHANICAL AND ELECTRICAL SPECIFICATIONS

Mechanical operating angle	X/Y axis: ±9°, ±12°, ±17° or ±20° crossgate ±20°
Lever strength	Max 500N static load
Life expectancy	20,000,000 full operations*
Sensor type	Hall-effect
Total current consumption	17mA-22mA
Applied voltage	5VDC ±10%
Load resistance	4,7kΩ-100kΩ pull down

\*referred to 12 degree angle deflection

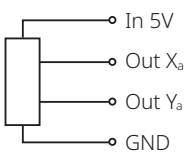
Effective output Resolution	Standard 10%-90% Vin, other ratios on request Essentially infinite
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### ENVIRONMENTAL SPECIFICATIONS

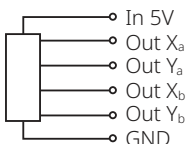
Operating temperature range	-40°C to +85°C
Storage temperature range	-40°C to +85°C
EMC	100V/m
ESD	±8kV (contact discharge) ±15kV (air discharge)

## OUTPUT OPTIONS

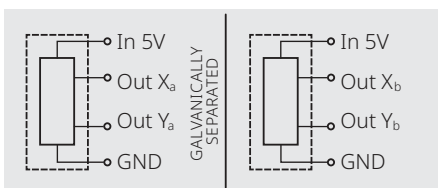
### SINGLE OUTPUT



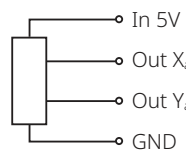
### DUAL OUTPUT



### DUAL INDEPENDENT OUTPUT



### SINGLE DIGITAL OUTPUT\*



\*One switch signal per direction, or one centre switch per axis (please consult Caldarò).

### CAN INTERFACE

CANopen or J1939 protocol

