

# FR series

## Hall effect 3-position thumb controls

Distinctive features and specifications



- Non-contact Hall effect technology
- Three position, ON-OFF-ON analog output
- 3 million lifecycles
- Submersible to 1m (3.28ft) per IP68
- Choice of handle color
- Redundant outputs available

### ENVIRONMENTAL

- Operating Temperature: -40°C to +85°C (-40°F to +185°F)
- Storage Temperature: -40°C to +85°C (-40°F to +185°F)
- Sealing: Submersible to 1m per IP68<sup>4</sup>
- EMC Immunity Level: EN61000-4-3
- EMC Emissions Level: EN61000-6-3:2001
- ESD: EN61000-4-2

### MECHANICAL

- Initial Actuation Force:
  - 260g Nominal into position 2<sup>3</sup>
  - 360g Nominal out of position 2<sup>3</sup>
- Maximum Vertical Load: 200N<sup>3</sup>
- Maximum Horizontal Load: 150N<sup>3</sup>
- Mechanical Life: 3,000,000 full forward to full back

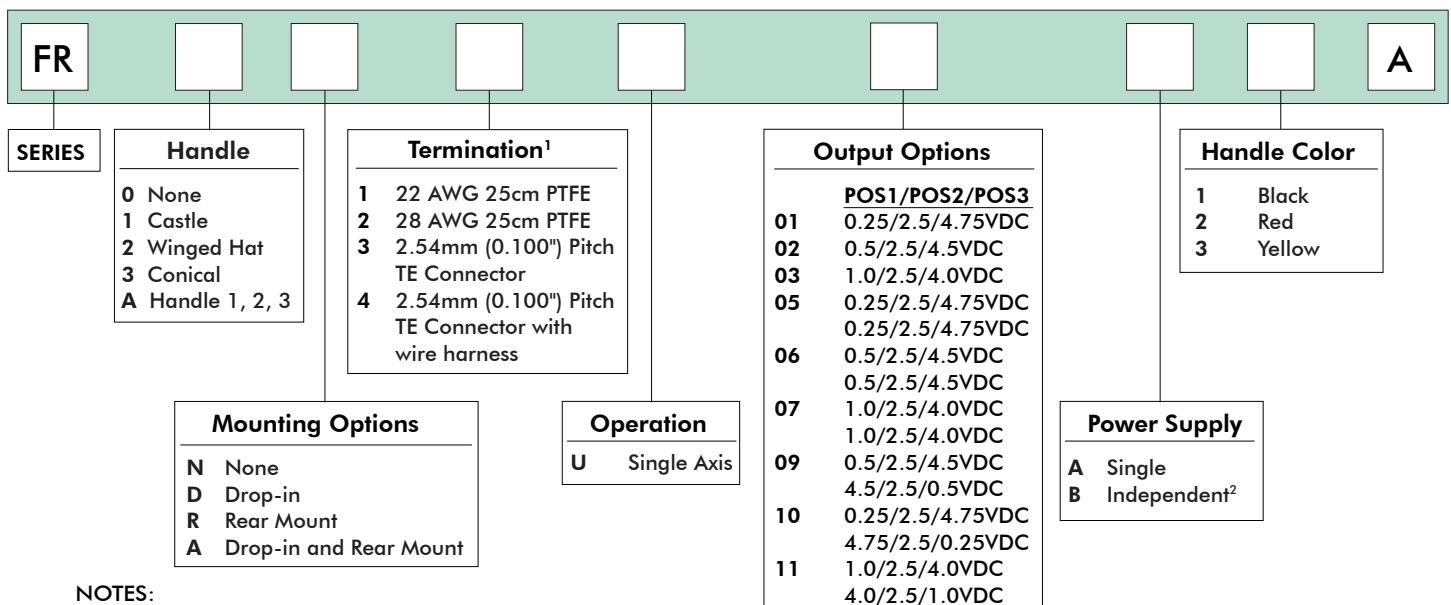
### ELECTRICAL

- Supply Voltage Range: 5.00V ± 0.01V
- Reverse Polarity Max: 10V
- Overvoltage Max: 20V
- Return to Center Voltage Tolerance (POS2): 2.50V ±0.50V
- Output Voltage Tolerance at Full Travel/Detent Position (POS1, POS3): ±0.25V

### MATERIALS

- Handle/Actuator: Glass filled nylon
- Body: Glass filled nylon
- Boot: Silicone

NOTE: All values are nominal.



### NOTES:



Mounting accessories.

Standard hardware includes: – For the Drop-in option: 4 push in connectors, drop-in bezel and an O-ring.  
 – For the Rear mount option: 4 x 1/2 FH SS Phil Screws and a rear mount bezel.

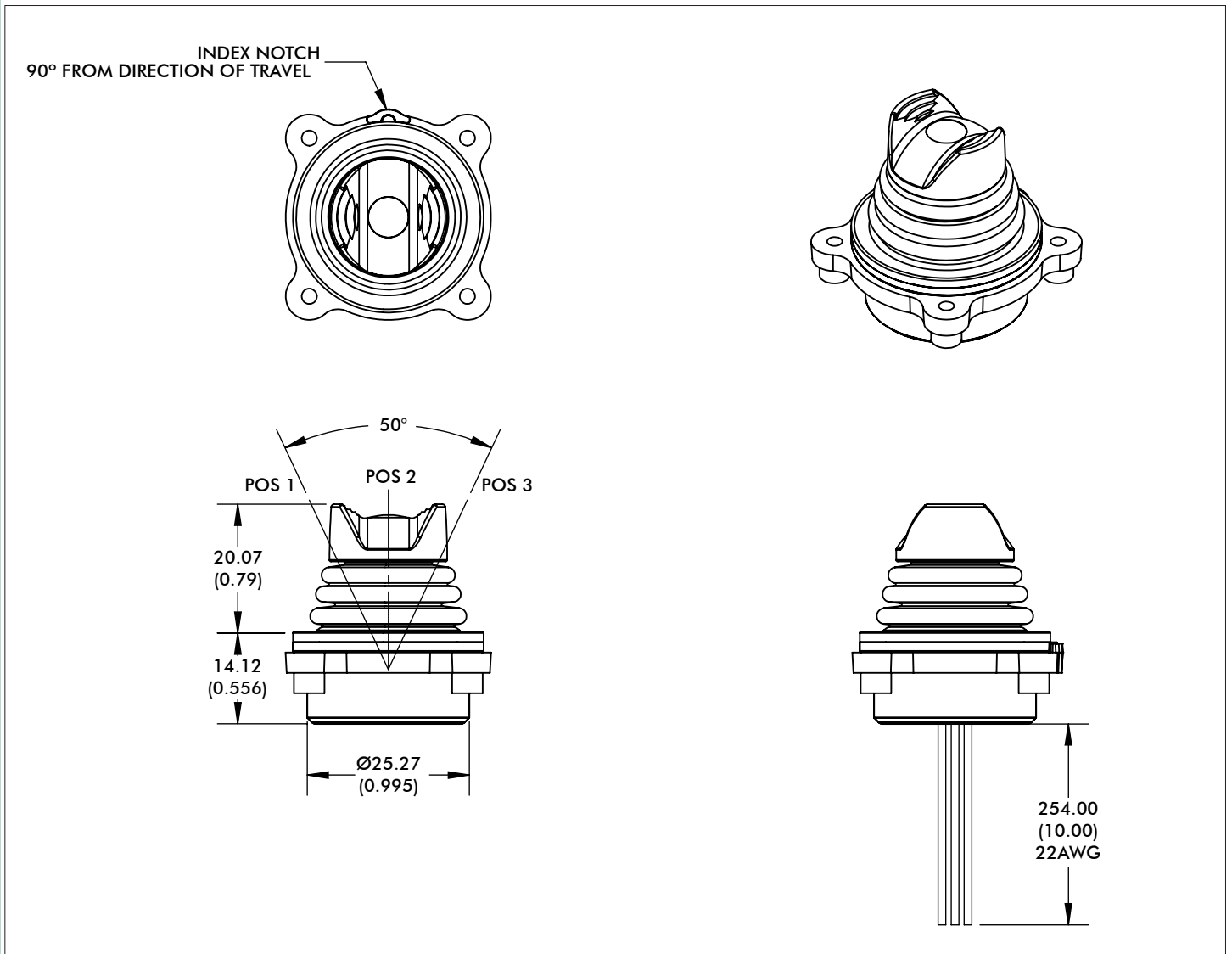
- 1-1 – Wires are thick, robust, and best suited for stand alone applications.
- 1-2 – Wires are thin and best suited for tightly constrained wire routing.
- 2 Only available on dual output.  
Not available with Termination Options 3 or 4.
- 3 Force applied to the top of the castle cap.
- 4 All options are IP68 rated, however Drop-in mounting does not prevent panel ingress.

Note: The company reserves the right to change specifications without notice.

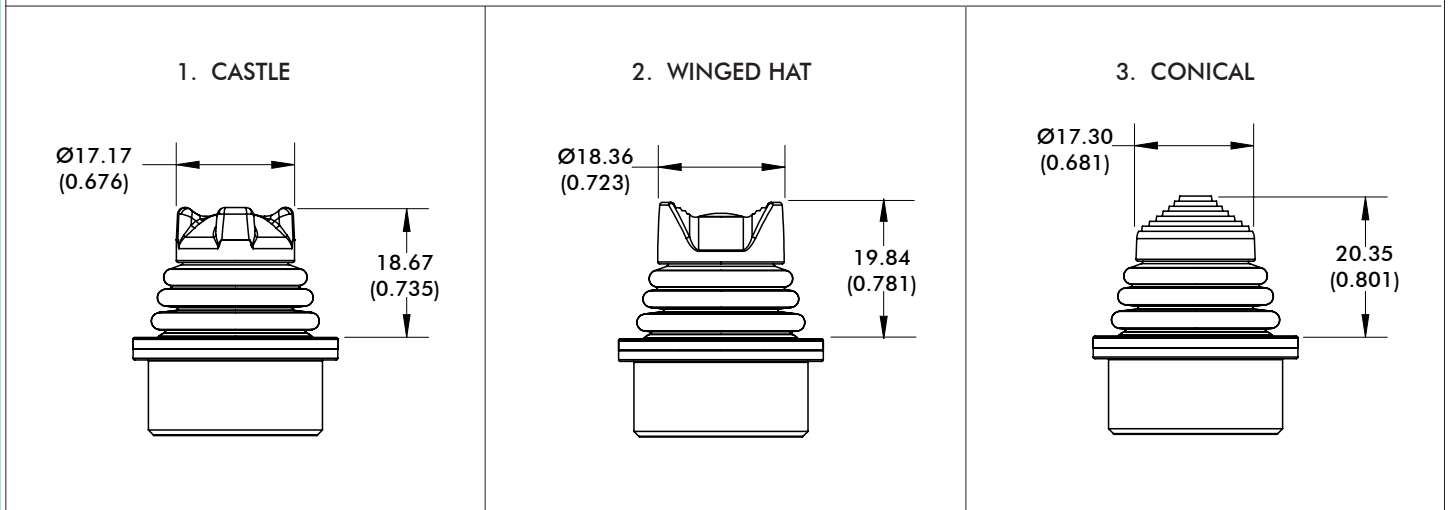
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Overview



### HANDLE OPTIONS



NOTE: Dimensions are in mm/(inch).

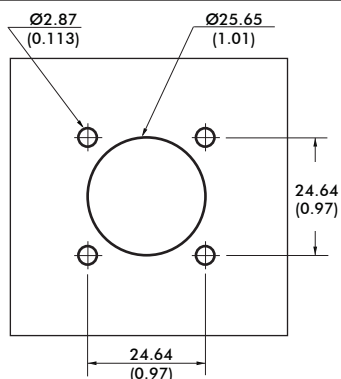
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Overview

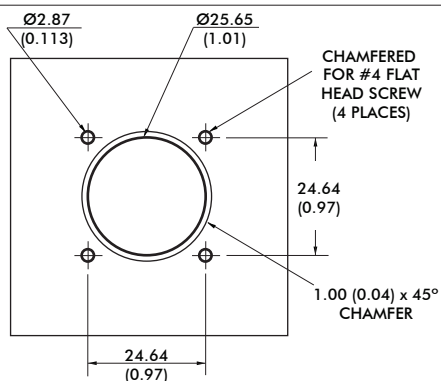
### DROP-IN OPTION CUTOUT DIMENSIONS



4 x PUSH IN CONNECTORS



### REAR MOUNT OPTION CUTOUT DIMENSIONS



4 x 1/2 FH SS PHIL SCREW



#### NOTES:

- 1 The maximum panel thickness for the Rear Mount configuration is 2.032mm/(0.08in).
- 2 The under panel depth for the Drop-in configuration is 16.02mm/(0.631in).
- 3 Dimensions are in mm/(inch).

#### WIRING SPECIFICATION

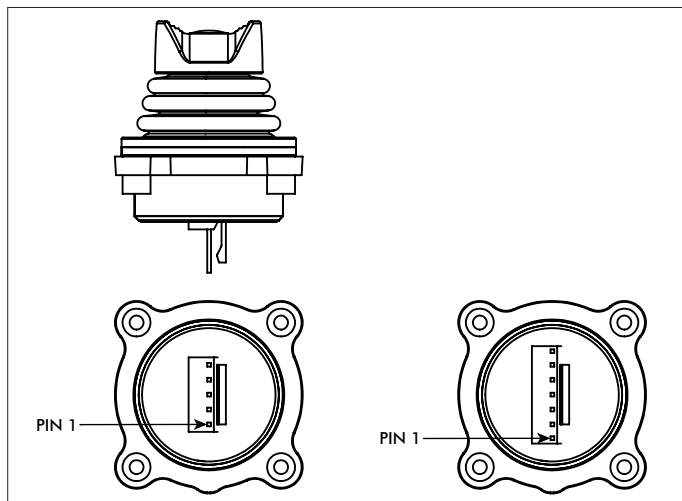
- Black: Ground & button common
- Red: Power (5V)
- Blue: X axis output (alpha)
- Blue/White Stripe: X axis output (beta)
- Red/White Stripe: Power (5V) (beta)
- Black/White Stripe: Ground (beta)

#### CONNECTOR TERMINATION OPTION

Single output configurations feature a five position TE 3-647166-5 connector. Dual output configurations feature a seven position TE 3-647166-7 connector. A mating harness is not included, but may be specified for single output configurations at the time of order for an additional charge. The five function harness is part number 505-499.

#### PINOUT SPECIFICATION

	TE 3-647166-5	TE 3-647166-7
Pin 1	Not used	Not used
Pin 2	5VDC	GND
Pin 3	X (alpha)	X (alpha)
Pin 4	GND	Not used
Pin 5	Not used	Not used
Pin 6	-	5VDC
Pin 7	-	X (beta)



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