

HC series

Control pad for extreme harsh environment



DISTINCTIVE FEATURES

2 versions : Small (7 buttons) and Wide (11 Buttons)

High level of configuration : buttons and joystick type and styles

Available in USB, ETHERNET, CANOPEN, J1939 and Analogue versions

Product designed to meet MiL-STD-810G specification



ENVIRONMENTAL SPECIFICATIONS

- Operating temperature : -40°C to +85°C
- Storage temperature : -40°C to +85°C
- Panel sealing : IP67
- Humidity resistance : 93% humidity at +40°C for 16 hours
- Rapid temp cycling
 - STEP A : 93% humidity at +40°C for 3 hours
 - STEP B : -20°C for 3 hours
 Repeat above steps for 3 cycles (18 hours total)
- Tropical exposure :
 - Start +20°C ±5°C at ambient humidity
 - Over 3 hours raise to +35°C at >95% humidity
 - Hold for 12 hours
 - Over 3 hours lower temp to +20°C and saturate with water vapor
 - Hold for 6 hours
 - Total time for above is 24 hours
 - Repeat above for 7 cycles (7 days total)
- Dust :
 - Raise temp to 40°C at relative humidity of < 50%
 - Unit subject to dust laden air for 1 hour
- Drip proof : water dripped onto unit from height of 1m for 1 hour
- Corrosion (salt):
 - Unit exposed to salt spray for 2 hours at +20°C ±5°C
 - Raise temp to +35°C



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ELECTRICAL SPECIFICATIONS

- EMC immunity level : EN61000-4-3
- EMC emissions level : EN61000-6-3:2001
- ESD : EN61000-4-3 level 2 (± 4 kv contact, ± 6 kv air)
- EMI/EMC : MIL-STD-461F
 - CE102 Conducted Emissions
 - CS101 Conducted Susceptibility Power Leads
 - CS114 Conducted Susceptibility Current Injection
 - CS115 Conducted Susceptibility Impulse
 - CS116 Conducted Susceptibility Transients
 - RE102 Radiated Emissions
 - RE103 Radiated Susceptibility



MECHANICAL SPECIFICATIONS

- Random vibration : 20-2000Hz
 - 20-500Hz at ASD $0.5(\text{ms}^2)^2/\text{Hz}$
 - Then falling to ASD $0.05(\text{ms}^2)^2/\text{Hz}$ at 2000Hz
 - Duration : 140 minutes in each axis
- Shock : half sine pulse
 - Peak acceleration 150m/s^2
 - Duration 10-15ms
 - 3 shocks In each axis in each direction, 18 shocks in total
- Bump : 4000 bumps in vertical axis to normal orientation
 - Half sine wave
 - Peak acceleration 250m/s^2
 - Duration 6ms
- Drop & topple : IEC 60068-2-31
 - In delivery packaging
 - To prove no damage during transport



MATERIALS

- Body : aluminium 6082 T6
- Fixing screws : A2 Stainless Steel
- Gasket : Conductive Silicone Elastomer (Chro Seal 1285)
- Plating : SURTEC 650
 - Tri-chrom passivation for aluminium
- Painting : NEXTEL suede coating 3101 - Body Color :
 - Tan
 - Grey
 - Green
 - White
 - Black

APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.



EXTRA FEATURES AVAILABLE ON REQUEST

THUMBSTICK OPTIONS

- APEM TS series (rear mount), handle style and limiter configurable

PUSHBUTTON OPTIONS

- All APEM pushbuttons series
- All actuator, bezel & LED colour options are configurable

LABEL OPTIONS

- Colour, text, symbols and graphics of labels fully customizable

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STANDARD CONNECTORS & PINOUTS



CONNECTOR FOR ALL CAN VERSIONS (CAN OPEN & J1939)

• UR02-W-08-M-009-S-BK1-E1AB (CODE 1)

PIN	AWG	DESCRIPTION
1	28	+10V TO +30V
2	28	0V
3	28	CAN_H
4	28	CAN_L
5	28	CAN SCREEN
6	28	N/C
7	28	CONNECTOR FITTED
8	28	VOLT-FREE-SW IN
9	28	VOLT-FREE-SW OUT

Mating connector P/N: UP01-Q-08-F-009-S-BK1-Z1ZB

CONNECTOR FOR ETHERNET VERSION

• UR02-W-11M-016-S-BK1-E1AB (CODE 1)

PIN	AWG	DESCRIPTION
1	28	+5V
2	28	0V
3	28	USB+
4	28	USB-
5	28	USB_SCREEN
6	28	ETHERNET TX+
7	28	ETHERNET TX-
8	28	ETHERNET RX+
9	28	ETHERNET RX-
10	28	N/C
11	28	CONNECTOR FITTED
12	28	VOLT-FREE-SW IN
13	28	VOLT-FREE-SW OUT
14	28	N/C
15	28	N/C
16	28	N/C

Mating connector P/N: UP01-Q-11-F-016-S-BK1-Z1ZB

CONNECTOR FOR USB VERSION

• UR02-W-08-M-009-S-BK2-E1AB (CODE 2)

PIN	AWG	DESCRIPTION
1	28	+5V
2	28	0V
3	28	USB+
4	28	USB-
5	28	USB_SCREEN
6	28	N/C
7	28	CONNECTOR FITTED
8	28	VOLT-FREE-SW IN
9	28	VOLT-FREE-SW OUT

Mating connector p/n: UP01-Q-08-F-009-S-BK2-Z1ZB

CONNECTOR FOR ANALOGUE VERSION

• UR02-W-13M-027-S-BK1-E1AB (CODE 1)

PIN	AWG	DESCRIPTION	V (DC)
1	28	+5V	+5V
2	28	0V	0V
3	28	SW1	+5V OR O/C
4	28	SW2	+5V OR O/C
5	28	SW3	+5V OR O/C
6	28	SW4	+5V OR O/C
7	28	SW5	+5V OR O/C
8	28	SW6	+5V OR O/C
9	28	SW7	+5V OR O/C
10	28	SW8	+5V OR O/C
11	28	SW9	+5V OR O/C
12	28	SW10	+5V OR O/C
13	28	LED-1	+5V OR O/C
14	28	LED-2	+5V OR O/C
15	28	LED-3	+5V OR O/C
16	28	LED-4	+5V OR O/C
17	28	LED-5	+5V OR O/C
18	28	LED-6	+5V OR O/C
19	28	LED-7	+5V OR O/C
20	28	LED-8	+5V OR O/C
21	28	LED-9	+5V OR O/C
22	28	VOLT-FREE-SW IN	
23	28	VOLT-FREE-SW OUT	
24	28	LH X	5V - 0V
25	28	LH Y	5V - 0V
26	28	RH-X	+5V OR O/C
27	28	RH-Y	+5V OR O/C

Mating connector P/N: UP01-Q-13-F-027-S-BK1-Z1ZB

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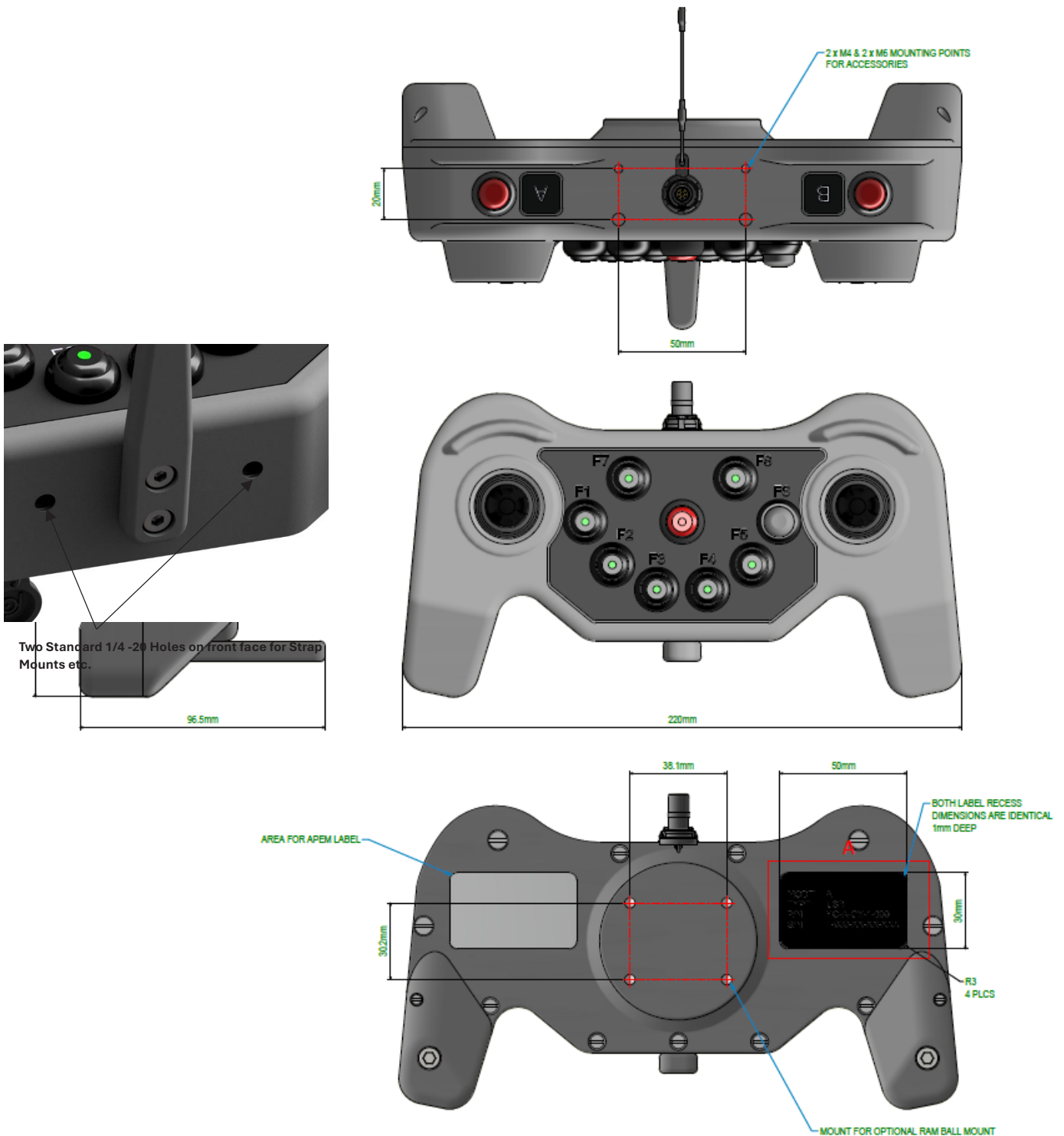


BUILD YOUR PART NUMBER



HAND CONTROLLER DIMENSIONS - MODEL W

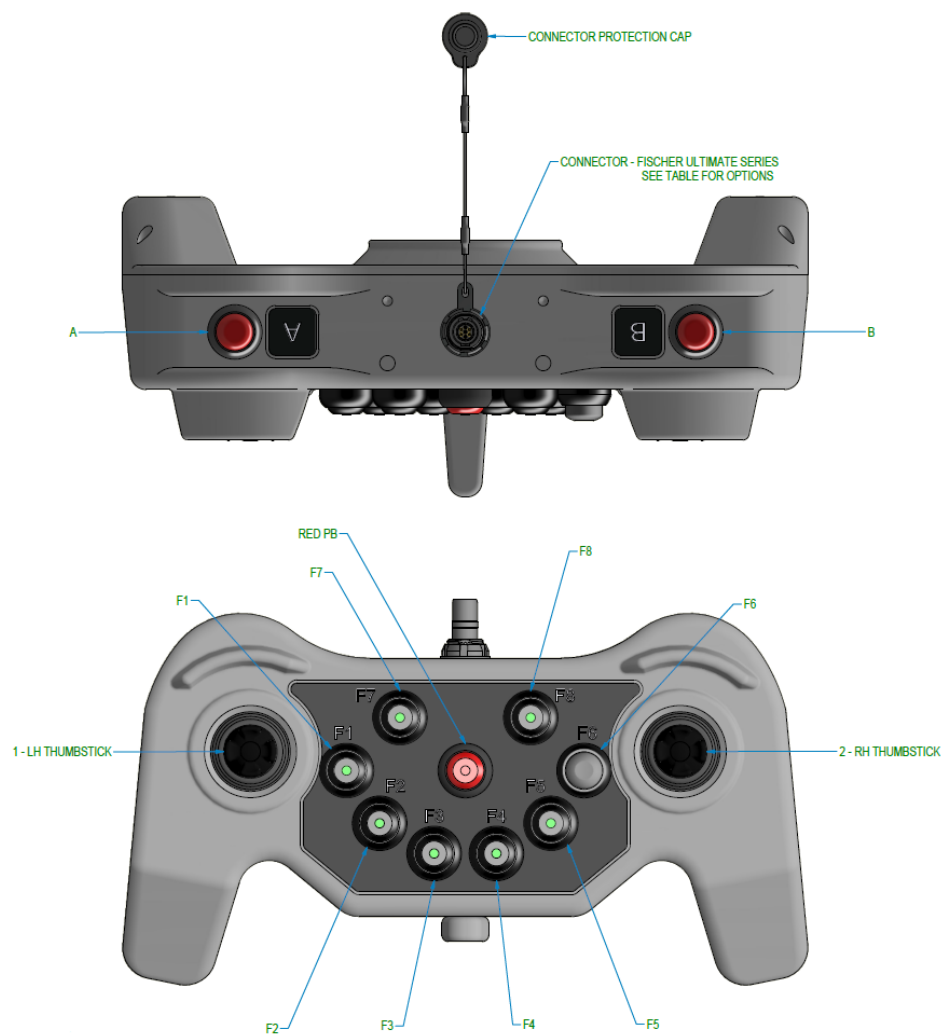
Mass Model W : Approx 1.2 Kg



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HAND CONTROLLER W STANDARD CONFIGURATION – PUSHBUTTONS/THUMBSTICKS



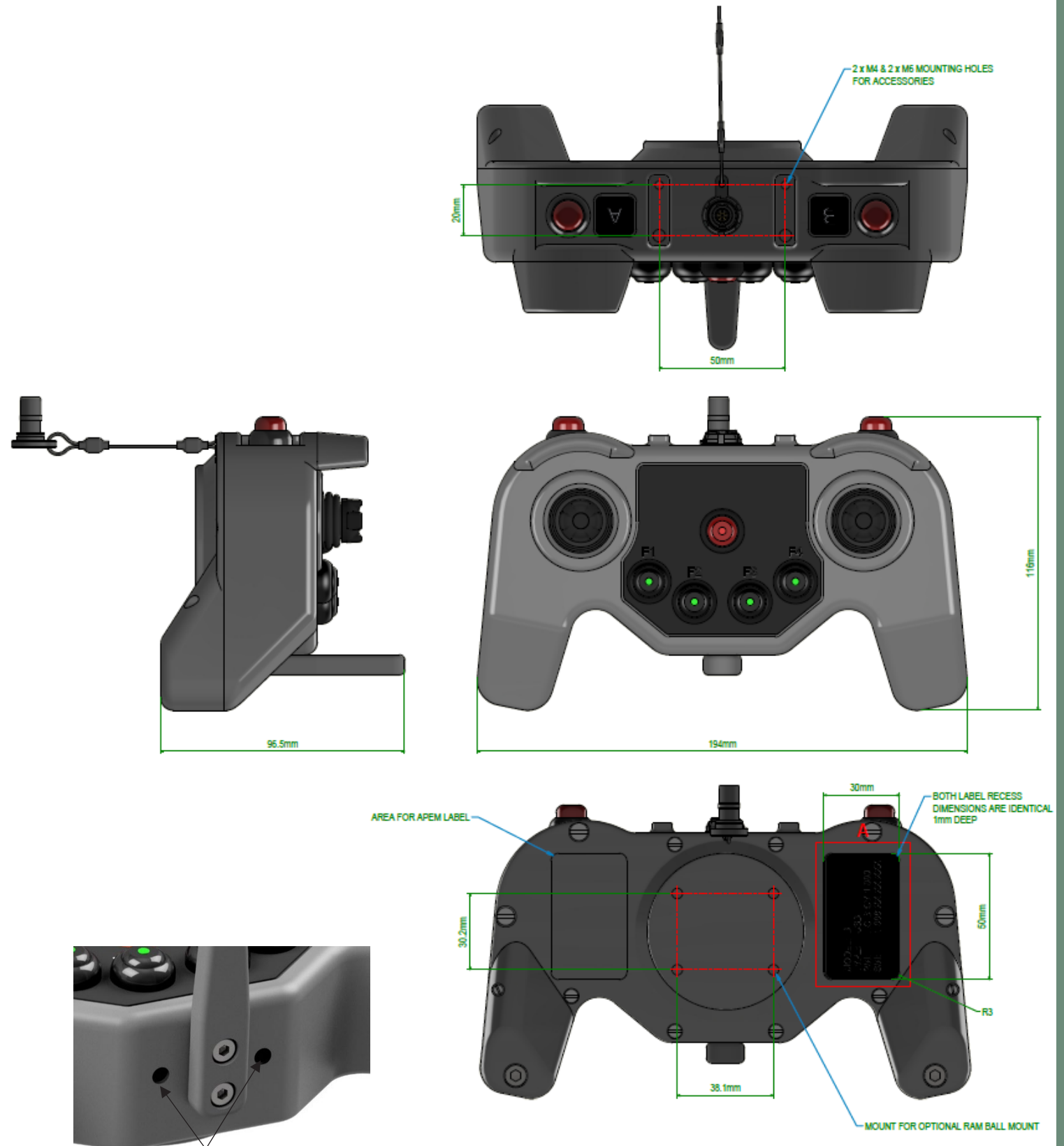
ITEM	PART NO.	DESCRIPTION
F1	IPR3SAD-2-LOG	PUSHBUTTON, BLACK, GREEN LED
F2	IPR3SAD-2-LOG	PUSHBUTTON, BLACK, GREEN LED
F3	IPR3SAD-2-LOG	PUSHBUTTON, BLACK, GREEN LED
F4	IPR3SAD-2-LOG	PUSHBUTTON, BLACK, GREEN LED
F5	IPR3SAD-2-LOG	PUSHBUTTON, BLACK, GREEN LED
F6	IPR3SAD-2-104	PUSHBUTTON, BLACK, RAISED ACTUATOR
F7	IPR3SAD-2-LOG	PUSHBUTTON, BLACK, GREEN LED
F8	IPR3SAD-2-LOG	PUSHBUTTON, BLACK, GREEN LED
RED PB	IPR1SAD-6-LOS	PUSHBUTTON, RED, RED LED, LATCHED
A	ICR3SAD-6-104	PUSHBUTTON, RED, RAISED ACTUATOR, SHORT BODY
B	ICR3SAD-6-104	PUSHBUTTON, RED, RAISED ACTUATOR, SHORT BODY
1-LH	TS-1-R-1-S-00-A	THUMBSTICK, ROUND LIMITER, CASTLE
2-RH	TS-1-R-1-S-00-A	THUMBSTICK, ROUND LIMITER, CASTLE

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HAND CONTROLLER DIMENSIONS - MODEL S

Mass Model S : Approx 1.0 Kg



Two Standard 1/4 - 20 Holes for Strap Mounts etc.

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HAND CONTROLLER S STANDARD CONFIGURATION – PUSHBUTTONS/THUMBSTICKS



ITEM	PART NO.	DESCRIPTION
F1	IPR3SAD-2-LOG	PUSHBUTTON, BLACK, GREEN LED
F2	IPR3SAD-2-LOG	PUSHBUTTON, BLACK, GREEN LED
F3	IPR3SAD-2-LOG	PUSHBUTTON, BLACK, GREEN LED
F4	IPR3SAD-2-LOG	PUSHBUTTON, BLACK, GREEN LED
RED PB	IPR1SAD-6-LOS	PUSHBUTTON, RED, RED LED, LATCHED
A	ICR3SAD-6-104	PUSHBUTTON, RED, RAISED ACTUATOR, SHORT BODY
B	ICR3SAD-6-104	PUSHBUTTON, RED, RAISED ACTUATOR, SHORT BODY
1-LH	TS-1-R-1-S-00-A	THUMBSTICK, ROUND LIMITER, CASTLE
2-RH	TS-1-R-1-S-00-A	THUMBSTICK, ROUND LIMITER, CASTLE



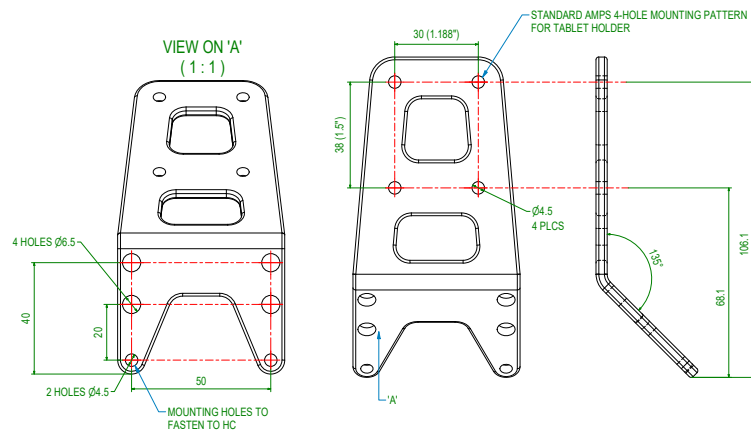
ACCESSORIES

Hand controller features mounting points for a range of accessories, including tablet/phone mounts, RAM ball type mounts and straps.

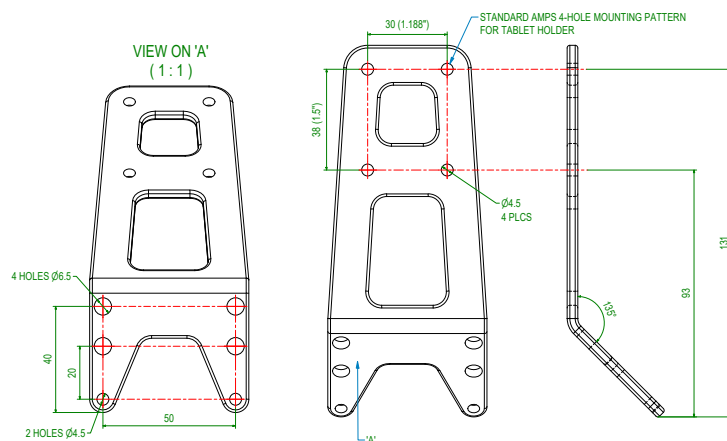
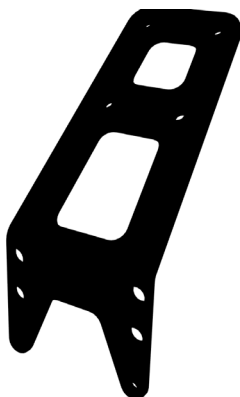
TABLET HOLDER ADAPTOR :

The tablet holder adaptor allows for a range of holders to be fitted to the front of the hand controller.

1/ 8-10 INCH TABLET HOLDER ADAPTOR (FIXED ANGLE) :

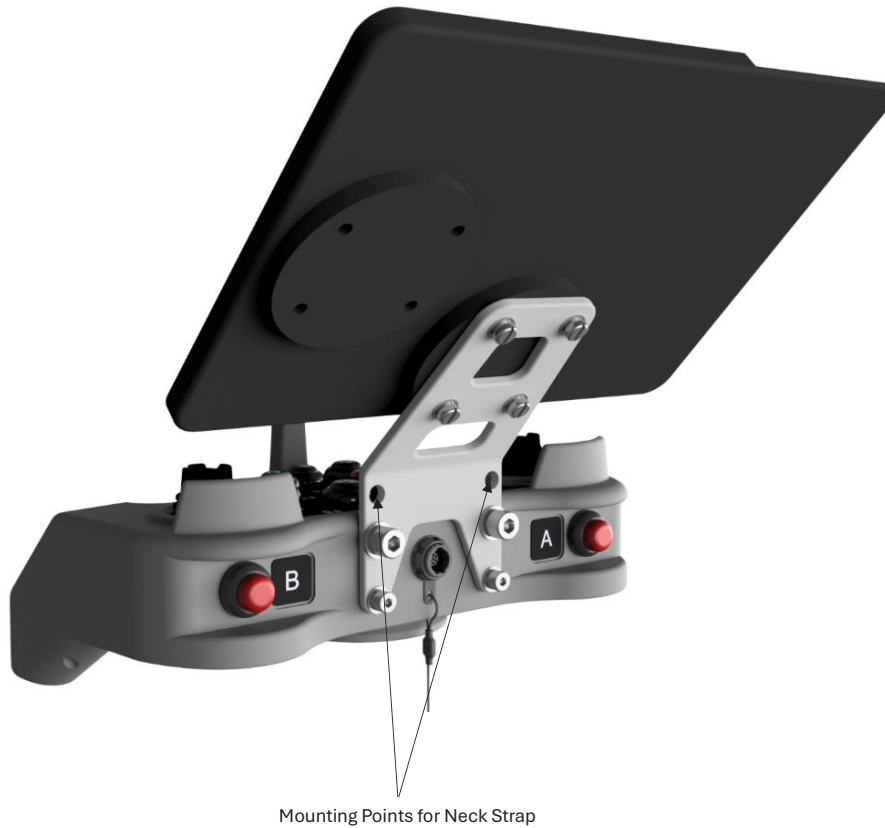


2/ 11+ INCH TABLET HOLDER ADAPTOR (FIXED ANGLE):



3/ UNIVERSAL ADJUSTABLE ANGLE TABLET HOLDER AVAILABLE UPON REQUEST

NECK STRAP AVAILABLE UPON REQUEST



HAND CONTROLLER HARNESS + MATING CONNECTOR (CABLE UP TO 5M)

