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Rugged Pointing Devices



- ***Summary***
- ***Features***
- ***Options***
- ***Specifications***

Product Summary: Pointing Devices

Cortron offers a variety of Commercial Off The Shelf (COTS), custom and semi-custom Trackballs, Handgrips, Joysticks and our unique DuraPuck Pointing pointing devices. As with all Cortron products, our standalone products are designed to meet the rigors of even the most hostile industrial and military environments, making it ideal for critical applications such as Air Traffic Control, Weapons Systems and Tactical Field operations where continuous long-term cursor control is required and reliable performance is paramount.

Highly ergonomic designs of the pointing devices and integrated button actuators promotes maximum operator efficiency by significantly reducing the keystroking movements and accompanying stress typically associated with intensive human machine interfaces.

Cortron Rugged pointing devices are designed to be virtually impervious to liquids, sand, dust, and other types of contaminants found in harsh applications, both indoors and in the field. Vital components are sealed for long-term protection and survival.

Cortron Rugged pointing devices are designed in a modular fashion – typically utilizing similar (or same) set of electronics and are configured to meet a particular requirement.

Rugged Pointing Devices

Typical Pointing Device Features include:

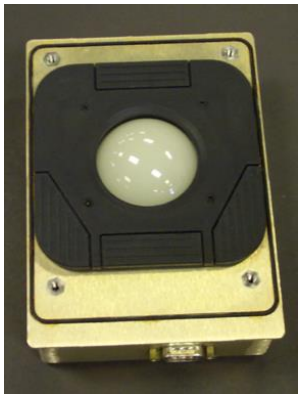
- Spill Proof/Dust Proof designs for even the harshest conditions
- Precise movement and response with smooth acceleration curve for ease of use in the most intricate applications
- Ergonomic Button Placement
  DuraTrack Bezel includes:
  - Three Lower Buttons with Standard Mouse Layout (Left-Middle-Right)
  - Top Button Provides "Drag Lock" or backlight control

  Other button layout options available
- All Metal Construction with Stainless Steel Hardware
- 10 Million Inches (minimum) for standard Mechanical Components (may vary dependent on specific pointing device selected)
- 350,000 Hours MTBF @ 25°C, Ground Benign
- 10 Million Life Cycle Snap Action Buttons
- Electronics Isolated From Ball Cavity (Prevents Optical Sensor Contamination and ESD Damage)
- Pointing device / Ball Cavity Drain
- Standard products are Plug Compatible (no drivers required, sensitivity adjustable via host)

Trackballs also include the following features:

- Polished Black or Glowball sizes include from 1", 1 3/8", 2". 2 ½" trackball available in non-backlit only
- Solid-State Optical Sensors (trackball) for Long Term Reliability
- Sealed High Precision Stainless Steel Sealed Bearings
- Strong Stainless Steel Encoder Shafts
- Removable Ball for Easy Cleaning

Our most popular pointing device is our 2" DuraTrack Trackball – available in a wide variety of standard enclosure and mounting options.



570 Series Panel Mount
with 2" DuraTrackball



570 series 2" DuraTrackball
with backlit ball and switch bezel



610 Series 2" DuraTrack
Top panel mount,non-backlit

Rugged Pointing Devices



606 Series 2 1/2"Trackball



620 Series 2” DuraTrack with DZUS captive fasteners



800 Series 2”DuraTrack with 6 buttons

Cortron pointing devices are are available in a variety of physical configurations, including Table Top and Panel Mount installations.



DuraPuck Pointing Device

Other pointing device designs include our unique ‘DuraPuck’ pointing device, offering a sealed, self-contained pointing device that slides – offering great pointing device control in a limited area such as aircraft or vehicle installations.

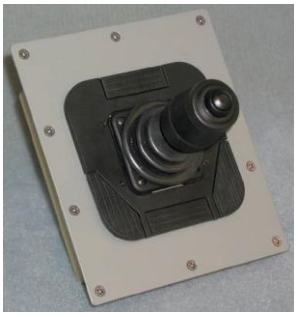
Joystick and Handgrip solutions include a variety of button placement and designs, including options of programmable interlocks to avoid inadvertent actuation. The buttons on the 630 and DuraPuck pointing devices share the same switch bezel as our popular DuraTrackball, and are positioned to support the natural physiology of finger movements and the natural differences in finger length for hand sizes from the 5th to the 95th percentile. Cursor point-and-click operations are performed effortlessly using natural finger movements.



607 series Handgrip



630 Series Joystick



648 Series Joystick

Rugged Pointing Devices

Options / Product Configuration

Select the options **you** want to meet **your** project requirements! Commercial Off The Shelf (COTS) or custom – the choice is yours!

Pointing Device Options


2 " DuraTrack Glowball with Integral Backlit 4 button bezel


2 " DuraTrack Trackball with Integral 4 button bezel


2" DuraTrack Trackball with integral 6 button bezel


DuraPuck Pointer


1 3/8" Trackball with 3 cursor keys


630 & 631 series joystick

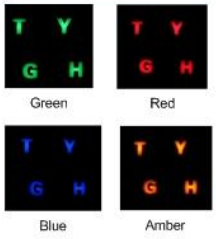

2 ½" Trackball, 700 series


648 series joystick


1" Trackball

General Options

Backlighting
Note: Not available on all products



Additional Colors available, including
- NVIS Green A (Class A or B)
- NVIS Green B (Class A or B
- Custom colors

Backlighting Control Options
- Key Control
- Knob Control
- Remote via voltage signal
- Remote via codes

Button Options
- Reverse button orientation
- 180 Degree button orientation
- Custom button codes

Enclosure Options

Mounting Style
- Table Top
- Panel Mount
- Rack Mount
- Bolt Down

Connector Options
- Bulkhead
  - 9 Pin D-Sub
  - MIL Connector
- Attached Cable
  - 9 Pin D-Sub
  - MIL Connector
  - PS2 connector
  - USB Connector
  - Customer specific

Other Options

Other Options Include :
- Protocol Definition
  - PS2
  - USB
  - USB with integral HUB
    - RS422
  - RS232
  - Other
- Enclosure Color
  - Navy Gray
  - Black
  - Off-White
  - Army Green
  - Custom
- Power Options
  - Standard (Powered by Host)
  - 28VDC
  - 28VDC / MIL-STD-704
  - Custom
- Shock Options
  - Standard MIL-STD-810 50G
  - MIL 901D options
    - keycap retainers
    - Shock Sensing firmware
- Other Options
  - External USB connector port
  - Custom features / functions

Final Product

Rugged Grade Pointing Device Specifications

Cortron Rugged Pointing Device Products have been designed and manufactured to meet the following commercial and military environmental specifications. Optional specifications are only installed upon request by customer.

Size: Varies depending on options selected, see Cortron detailed mechanical drawing prefixed with EMK.
Weight: Varies depending on installed options
MTBF: Trackball: 100,000-200,000 hours, typical, 25°C Ground Benign, MIL-HDBK-217, depending on installed options, see TM-336 for additional information.
Ergonomics: MIL-STD-1472, MOPP IV
Switches, Pointing Devices: 5 to 100 million cycles, dependent on device and installed options
Power, Input: Logic +5VDC @ 250mA or less depending on installed options
Power, Input (Optional): +24 to +28VDC, MIL-STD-704
Temperature: Operating: -20°C to +70°C Non-operating: -40°C to +70°C
Temperature, Extended (Optional): Operating: -40°C to +71°C Non-operating: -55°C to +85°C
Thermal Shock (Optional): Operating: -40°C to +71°C, Non-operating: -55°C to +85°C; transition less than 1 minute
Humidity: 0-95% RH, non-condensing
Humidity (Optional): 0-100% RH, condensing
Humidity / Corrosion, Operational (Optional): IEC60945: 4 cycles of 2hrs salt spray, 168hrs thermal soak +20-+40C.
Salt Fog (Optional): MIL-STD-810 (24, 48 or 96 hours)
Rain/Spill/Drip/Fire Sprinkler: MIL-STD-810/108 15º inclination or (Optional) 45º inclination
Water Jet Cleaning (Optional): 1500 PSI @ 20 inches
Sealing; Liquid/Dust Ingress Protection: NEMA 4 & IP65
Sealing; Liquid/Dust Ingress Protection (Optional): NEMA 6 & IP66, or IP67
Submersion (Optional): MIL-STD-810, 1m, Contact Cortron
Sand/Dust: MIL-STD-810
Shock: MIL-STD-810, +30g
Shock (Optional): MIL-STD-901D, Grade A Class I, Type A
Acceleration: MIL-STD-810 ranges 1.5-6.5g
Crash Safety: MIL-STD-810 ranges 4-16g
Vibration: MIL-STD-810, 20-2000Hz
+6db/Octave 20Hz -70Hz;
0.01G2/Hz 70Hz -700Hz
-6db/Octave 700-2,000Hz
Vibration (Optional): MIL-STD-810, 20-2000Hz
+6db/Octave 20Hz -70Hz;
$0.04G^2$/Hz 70Hz -700Hz
-6db/Octave 700-2,000Hz
EMI/RFI: Designed to meet MIL-STD-461, CE, IEC60945 and FCC regulations
Nuclear Survivability / Vulnerability (S/V): Contact Cortron.
EMP / HEMP: Contact Cortron
ESD: EN61000-4-2, 6kV Contact Discharge, 8kV Air Discharge
ESD (Optional): DO-160, 18kV
Altitude: +40,000 feet
Explosive Atmosphere: MIL-STD-810, Intrinsically Safe
Decompression:
MIL-STD-810 11psia to 3psia in greater than 15 seconds
Decompression, Rapid (Optional):
MIL-STD-810 11psia to 3psia in less than 4 seconds
Decompression, Explosive (Optional):
MIL-STD-810 11psia to 3psia in less than 0.5 seconds
Compass Safety (Optional): IEC60945
Solar Radiation: MIL-STD-810
Fluids (chemical) Resistance (Optional): MIL-STD-810
NBC Decontamination (Optional): Contact Cortron
Fungus (Optional): MIL-STD-810
Bench Handling: MIL-STD-810
Safety: MIL-HDBK-454, UL1950, CE,
materials UL recognized/approved, File #E179526
Workmanship: MIL-STD-454, IPC-610, Class 2
Workmanship (Optional): IPC-610 Class 3 or J-STD001 Class 2 or 3

NOTES:
1. Above specifications (Cortron TE10212601 Rev A3) subject to change without notice unless otherwise under written agreement.
2. Performance levels stated above are based on actual test results from many product tests using common Cortron standard design practices, components and modules.
3. Specifications noted above are assumed to be latest revisions. Cortron test data may be originated from older test specification revisions. Some tests performed by customers so Cortron may not have all test reports available.
4. Excessive spill, rain, salt fog or humidity, desire for product to survive for 10-20 years, or mitigate against RoHS tin whiskers may require optional conformal coating.
5. Performance levels may be dependent upon mounting configuration and options installed.
6. Optional performance levels must be requested by customer, standard Cortron products may not have extra performance capability installed, and may be configuration dependent.
7. All options and features may not be ready for immediate shipment depending on product version, contact Cortron for additional information.
8. Some options and features and combinations thereof may not meet all listed specifications without limitations or exceptions.
9. Unless specified otherwise, all products are compliant to DFARS 252.225-7014 Specialty Metals, Berry Amendment.
10. Prohibited materials: unless otherwise stated please assume Cortron products contain materials as listed on TM-334, available upon request. If customer requirement includes flow down of prohibited materials, please provide information for review by Cortron.
11. RoHS: Cortron is in process of migrating all standard product designs and materials to RoHS compliance. All plastics, standard enclosure case finishes, and standard electrical components used in Cortron products are RoHS compliant. As of 2014, unless specified otherwise, products may use lead based solder on electronic assemblies. Full RoHS compliant versions available upon request.

Please do not hesitate to contact Cortron for application assistance or if additional information is required.

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