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# CORTRON

RUGGED H M I

## Model 90 Rugged Keyboard



- **Summary**
- **Features**
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### **Product Summary: Full Featured Rugged Keyboard**

The Cortron Model 90 Series Rugged Keyboard is a versatile high-performance keyboard that is similar to, but more compact than, the industry standard 101 key layout. Keys are arranged in a standard QWERTY layout with function keys across the top of the keyboard. A full number pad is also included in the Model 90.

The Model 90 is designed for reliable long-term operation in hostile and demanding life dependent applications where survival is critical. The design, quality, and rugged construction enable the Model 90 to deliver trouble-free operation in harsh environments typically found in shipboard, airborne, ground based, and industrial applications.

The Model 90 key layout and design, like all Cortron keyboards, was developed to reduce the stress and strain on end users. The sculptured, full travel key switches enhance ease of typing and high speed data entry.

Many options and configurations are available – mounting options include table top (with or without feet for bolt down applications) or mounting flange for top panel installation. The Model 90 can be ordered with or without an integral pointing device and/or USB hub for easy integration into your host system.



Table Top Model 90 with 2" DuraTrack Trackball



Panel Mount Model 90 without pointing device

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**CORTRON**

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Model 90 Rugged Keyboard  
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Rev F

## ***Model 90 Rugged Keyboard***

### ***Product Features***

Cortron products are designed with the user in mind. You get rugged, sealed products that can be used every day. Ruggedization is not just an 'afterthought' – it's built in from the ground up. Install it today and depend on it for years. Rugged grade products typically include a limited *LIFETIME* warranty.

Model 90 Keyboards feature (either standard or via selectable options):

#### **Backlighting**

Negative image legends (legends glow) and key brightness control available  
Backlighting colors: green, red, yellow, white, blue, NVIS Green A or B  
Low power backlighting, no extra power needed, plug compatible to typical host ports

#### **Keys, Key Caps and Legends**

Cortron ForEver keys / legends are chemically and abrasion resistant  
Key legends: Standard USA layout or per customer request  
Custom keycap legends and Multi color keys available  
High speed data entry, N-Key rollover (easy to type ergonomic keys)  
Full-Travel, solid state switches with electronically controlled debounce

#### **Interfaces**

USB, SUN USB, PS2, other interfaces upon request

#### **Enclosures**

Durable metal enclosure with scratch resistant finish  
Panel mount and custom modifications available upon request  
Enclosure Colors: Standard are black, Navy gray, Army green, and off-white; Custom colors are available upon request

#### **Cables (optional)**

Various lengths, USB (Type A single or pair), PS2 (6 pin Mini DIN), or per customer request

#### **Pointing Devices**

Various options available, including 1 3/8" or 2" Trackballs, Puck pointing device, or none

#### **Environmental Protections & Performance**

Sealed rain proof, spill proof/sand and dust proof (IP65 and MIL-STD-810) construction  
EMI/RFI/ESD/EMP shielded and protected for critical applications  
Optional Extreme High Shock Protection (+100gs): Includes shock sensing (Stop Codes) and keycap clips as well as other options



Table Top Model 90 with custom keys and 2" DuraTrackball



Panel Mount Model 90 with 2" DuraTrackball

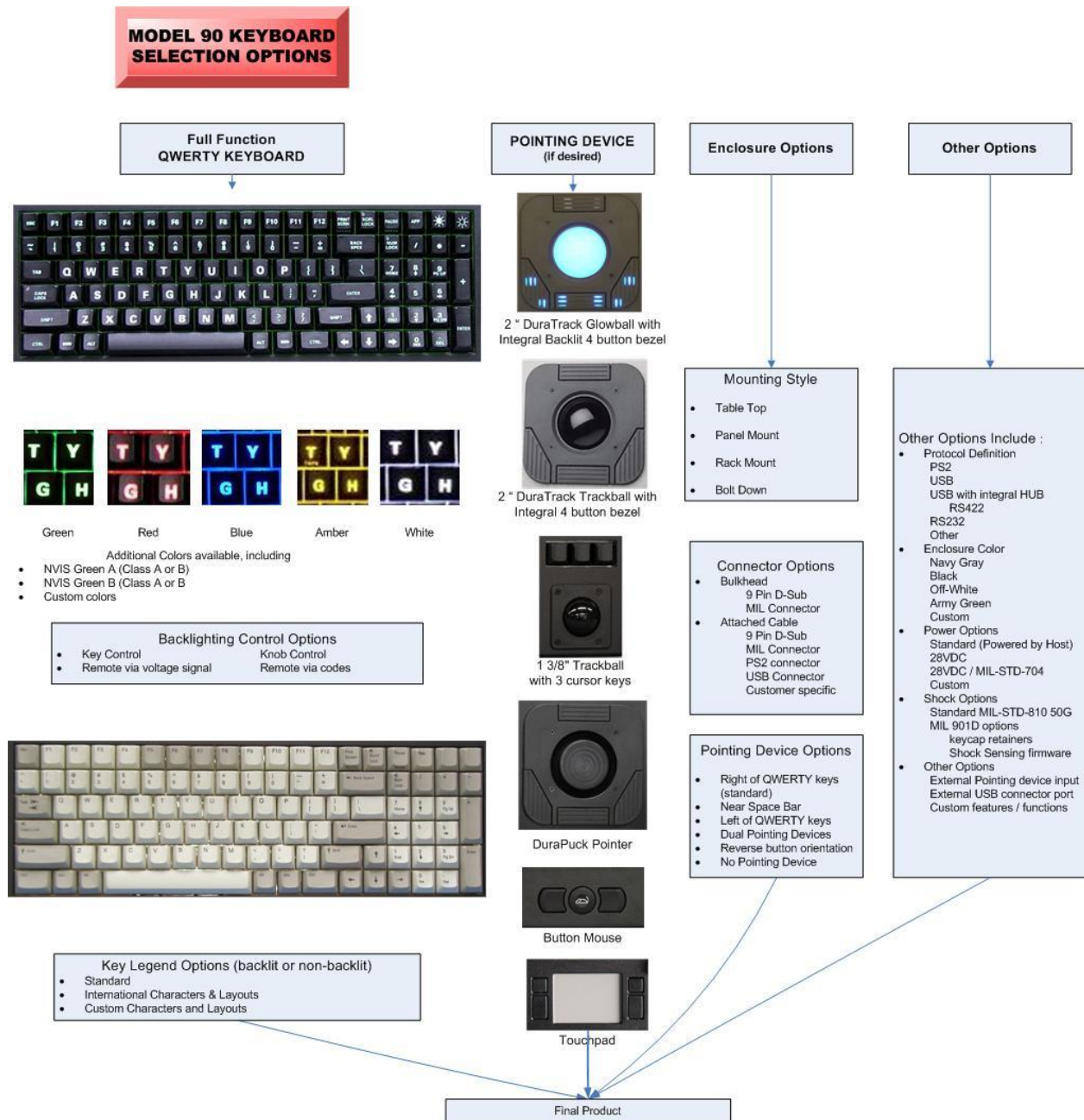
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### Product Options

Get What YOU want for YOUR project. With the modular nature of our product options, Cortron will build a keyboard to meet **your** project requirements while still being COTS. With over 1900 active part numbers, there's a good chance that Cortron has already built a product similar to what you are looking for. And if we haven't, we're happy to work with you to make a new version that will meet your application requirements. Contact us today to get a keyboard that meets **your** needs!



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## Rugged Grade Keyboard Specifications

Cortron Rugged Keyboard 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:** Keyboard:

200,000-300,000 hours, typical, 25°C Ground Benign, MIL-HDBK-217, depending on installed options, see TM-389 for additional information.

**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, Keyboards:** Full-Travel, 100 million cycles

**Switches, Pointing Devices:** 5 to 100 million cycles, dependent on device and installed options

**Switch Spacing:** 0.75" OC (on center), typical

**Power, Input:** Logic +5VDC @ 250mA or less depending on installed options

**Power, Input, Low Power Backlighting (Optional):** Unless specified by customer, combined keyboard logic and backlighting not to exceed + 5VDC @ 450mA Max., powered from keyboard and/or trackball ports. Max current can be tailored per customer specification.

**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 15° inclination or (Optional) 45° 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;

0.01G<sup>2</sup>/Hz 70Hz -700Hz

-6db/Octave 700-2,000Hz

**Vibration (Optional):** MIL-STD-810, 20-2000Hz

+6db/Octave 20Hz -70Hz;

0.04G<sup>2</sup>/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

**TEMPEST (Optional):** Contact Cortron; Level I or II, Red-Black

**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.