

SYSTEMS INFORMATION

RUGGEDIZATION



Ruggedization is designed into products from TEK Microsystems, Inc. from the start. Our product design and development process is a combination of design, test, and assembly practices to address the thermal and mechanical packaging requirements of both commercial and rugged environments.

Tekmicro products operate effectively in laboratory, rugged air-cooled, and rugged conduction-cooled environments to meet the needs of R&D and deployed applications.

Commercial products are intended for use in application development and benign operating environments. Rugged Level 2, convection cooled, products are intended for harsh environments with more demanding temperature, humidity, shock, and vibration requirements. Rugged Level 3, conduction cooled, products provide wider operating temperatures and increased capabilities for shock, vibration, and humidity for extreme operating conditions.

All of Tekmicro's commercial and rugged products share the same circuit design and layered drop-in software. This allows customers to develop their application on commercial products in the lab and then seamlessly transition to rugged environments once development has been completed.

This easy migration from commercial to rugged environments results in lower total development costs, reduced system integration risk, and quicker time to market.

DEPLOYED PLATFORMS

AIRBORNE (LARGE FIXED-WING)

AIRBORNE (FIGHTERS)

AIRBORNE (HELICOPTERS)

NAVAL SURFACE SHIPS

NAVAL SUBMARINES

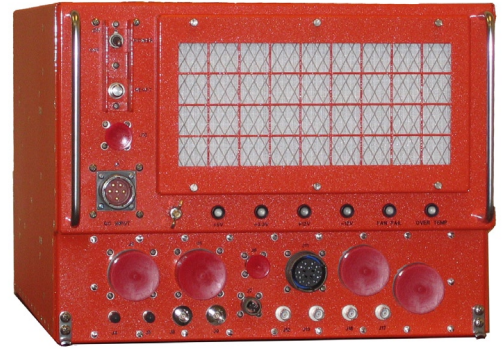
NAVAL UNMANNED VEHICLES

GROUND VEHICLES

System Level Ruggedization

Tekmicro has delivered systems and subsystem solutions to many customers with demanding levels of environmental specifications. From standard commercial platforms to ruggedized enclosures operating in harsh environments including conduction cooled packages, Tekmicro provides a complete development to deployment migration path.

Contact your Tekmicro representative to assess the specific needs of your project or program.



Board-Level Ruggedization Options

ENVIRONMENTAL SPECIFICATIONS	Commercial	Rugged Level 2 Convection Cooled	Rugged Level 3 Conduction Cooled
Operational Temperature @ Altitude	0°C to +55°C (300 LFM airflow) @ 0 to 10,000'	-40 to +70°C (600 LFM airflow) @ 0 to 30,000'	-40°C to +85°C (Card Edge) @ 0 to 60,000'
Storage Temperature @ Relative Humidity	-40°C to +85°C (10% to 95% non-condensing)	-55°C to +100°C (5% to 95% non-condensing)	-55°C to +125°C (0% to 95% non-condensing)
Relative Humidity (Operational)	10% to 95% (300 LFM airflow) non-condensing	5% to 95% (600 LFM airflow) non-condensing	0% to 95% non-condensing
Shock (Operational)	20g, 11 ms ½ sine pulse	20g, 11 ms ½ sine pulse	40g, 11 ms ½ sine pulse
Vibration (Sine) (Operational)	sine 2g peak 15 to 2000 Hz	sine 10g peak, 15 to 2000 Hz	sine 10g peak, 15 to 2000 Hz
Vibration (Random) (Operational)	0.003g ² /Hz from 15 to 2000Hz	0.04g ² /Hz from 15 to 2000Hz	0.1g ² /Hz from 15 to 2000Hz per MIL-STD-810E Fig 514.4 - 8 ~12g RMS
Conformal Coating	NO	YES	YES

Rugged Features

Same circuit design and layered, drop-in software at all rugged levels:

Meets demanding environmental challenges while maintaining functionality, performance, and software compatibility with standard Tekmicro solutions.

Three levels of ruggedization:

Choose the level that fits the application environment.

Development to production:

Applications developed on commercial products can be seamlessly transitioned to rugged products once development is completed, resulting in fewer system integration issues as well as cost and time savings.

Individual products may vary in minor ways and references should be made to individual data sheets for specific details.

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