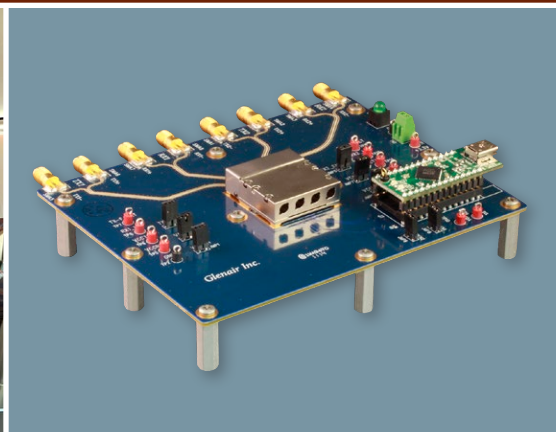


**TURNKEY**

# **PRINTED CIRCUIT BOARD AND FLEX ASSEMBLIES**

**COMPLETE VERTICAL INTEGRATION—FROM CONNECTORS TO BOARDS TO ASSEMBLY**

**DECEMBER 2014**



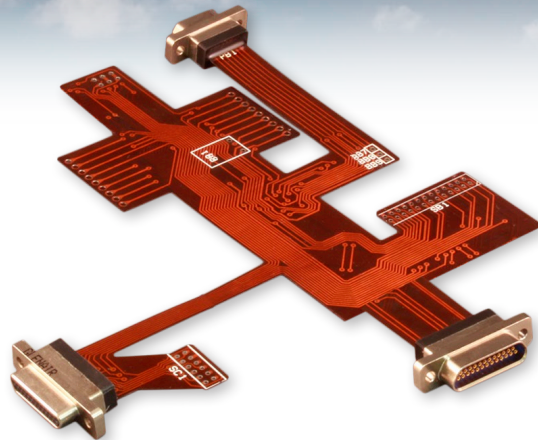




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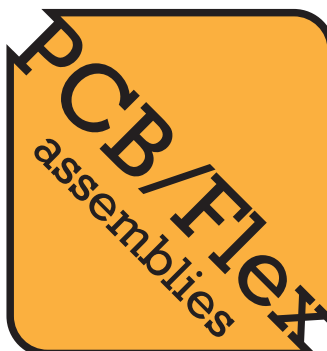
# PCB/Flex Circuit Assemblies

Full-service—from concept and design through fabrication, assembly and test



**P**CB/Flex circuit assembly is technology for assembling electronic circuits to flexible or rigid plastic substrates. PCB/flex circuits offer unsurpassed size and weight reduction compared to cable bundles, especially in tight spaces with multi-branch routing. Flex circuitry offers outstanding mechanical performance, able to withstand extreme vibration environments and capable of extended duty even through thousands of flexing cycles. Replacing complicated wire bundle assemblies with high-density flex assures faster, error-free assembly.

Glenair offers full-service turnkey PCB/Flex circuit assembly in our fully vertically-integrated design and manufacturing facilities—from concept and Gerber design layout, through PCB/flex fabrication, termination to any of our I/O, board level or mezzanine connectors, and rigorous system testing and inspection.



## ADVANTAGES OF FLEX CIRCUITRY

- Unsurpassed size and weight reduction
- Repeatable, reliable installation—virtually eliminates wiring errors
- Outstanding mechanical performance
- Convenient packaging and integration
- Reliable resistance to Harsh environments

# TURNKEY PCB/Flex Circuit Assemblies

Manufacturing • Product array



## Connector Manufacturing

Glenair is a vertically-integrated company, with over 1 million square feet of engineering and manufacturing facilities in the United States, plus Mansfield U.K. and Bologna Italy. Glenair has thousands of Mil-qualified and commercial interconnect products—circular, rectangular, miniature, subminiature and nanominiature—in high-availability catalog and custom solutions. Glenair is IPC 610, ISO 9001 and AS9100 certified.

## Board Manufacture

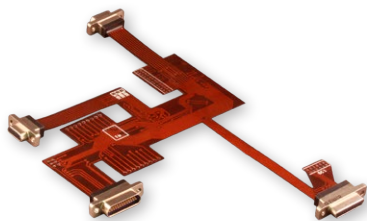
Glenair offers IPC Class III manufacturing, up to 8+ layers, multiple panel sizes and panel thicknesses up to .5 inch. A broad variety of materials are available for PC/Flex fabrication, including Polyimide, FR-4, Rogers 4003, and Isola. Available surface finishes include ENIG, HASL, Ni/Au and more.

## Turnkey Connectorized Assemblies

Glenair is pleased to leverage its vast design and engineering resources, renowned expertise in connector manufacturing, and vast production capability to offer full-service turnkey PCB/Flex fabrication services—from design to assembly to testing.

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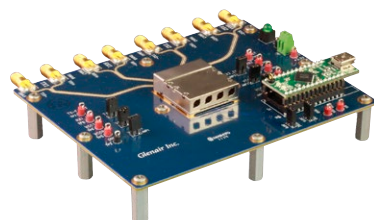
## FLEX ASSEMBLIES



- Multibranch or point-to-point connectorized jumpers
- Flexible routing for even the most complex multibranch installations
- Save size and weight compared to wire bundles
- Simplify complex wire bundle installation
- Shock and vibration resistant

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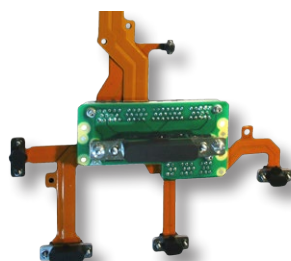
## RIGID BOARD ASSEMBLIES



- Rigid substrate for rugged and durable construction
- Provides hard-mount points for connectors and heavier components
- Ideal for double-sided component mounting

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## RIGID FLEX ASSEMBLIES








- “Best of both worlds” combines durable rigid board areas for double-sided and component mounting with 3-D routing advantages of vibration-resistant flex circuitry

# TURNKEY PCB/Flex Circuit Assemblies

Integration • Technical Specs



Glenair: The Flex/PCB Integration Experts				
				
Integrated assembly with a Glenair MasterLatch™ Micro-D connector and AlphaLink™ SL flex jumper terminated to a rigid board	High-shock matched-impedance Mighty Mouse connector with integrated backshell and flex circuitry	Opto-Electronic media-conversion transceiver on a rigid-board mezzanine card	AlphaLink™ jumper: SuperFly™ connector with integrated flex terminated to a spring-loaded contact B/L connector.	Integrated tactical box assembly with Mighty Mouse connectors and rigid circuit board

Flex	
Manufacturing Formats	Gerber • DXF • Altium
Max Panel Thickness	0.5"
Layer Count	20+
Termination	Thru Hole Via Reverse Bare Floating Fingers Direct crimp to flex Ziff Termination
Conductor Width/Space	Lines: .004" • Spacing: .004"
Bend Radius (military)	Single Layer: 6X Double Sided: 6X Multi Layer Rigid/Flex: 24X
Materials / Tg	Substrate: Polyimide/Kapton Flex adhesive and adhesiveless Coverlayer: Kapton (105° C) Stiffener: FR4 or Kapton (metal stiffeners available upon request) Conductor: Copper, Aluminum, SS, Constantan Adhesive: Acrylic 40° C, modified Epoxies: 165° C
Surface Finish	ENIG HASL Immersion Tin and Silver
Specs and Quality Management	IPC-6013 Class I, II, III, types 1-4 ISO 9001, AS 9100
Rigid	
Manufacturing Formats	Gerber • DXF • Altium
Max Panel Thickness	0.5"
Layer Count	20+
Termination	Thru Hole Via SMT
Conductor Width/Space	Lines: .004" • Spacing: .004"
Materials / Tg	Substrate: FR4: 180° C
Surface Finish	ENIG HASL Immersion Tin and Silver
Specs and Quality Management	IPC-6012 Class I, II, III, types 1-4 ISO 9001, AS 9100

\* The above is based on the most common materials and physical property requirements. Please consult the factory for alternatives



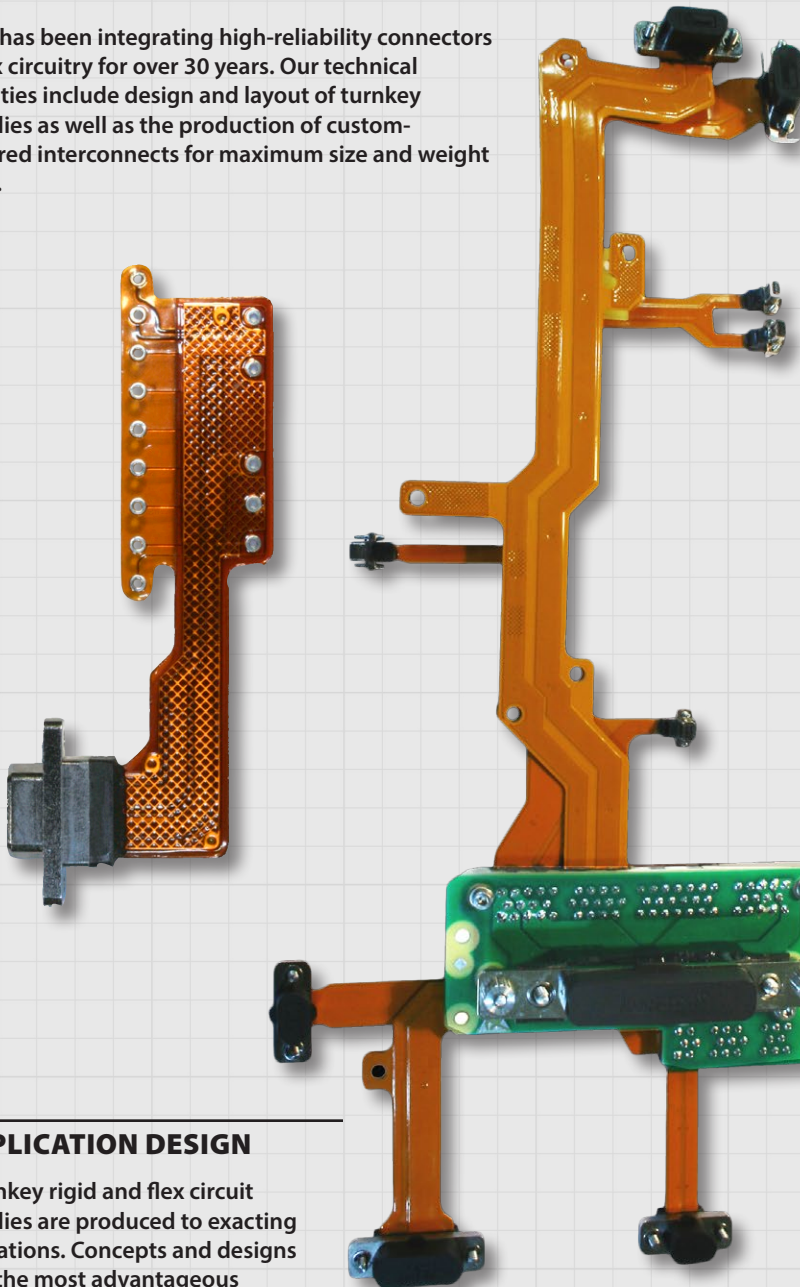
# TURNKEY PCB/Flex Circuit Assemblies

## 4 reasons to choose Glenair



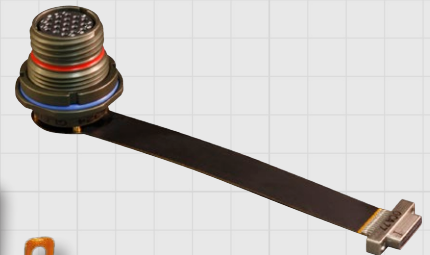
### 1. UNSURPASSED EXPERIENCE IN FLEX CIRCUIT ASSEMBLY

Glenair has been integrating high-reliability connectors into flex circuitry for over 30 years. Our technical capabilities include design and layout of turnkey assemblies as well as the production of custom-configured interconnects for maximum size and weight savings.



### 2. FULL-SPECTRUM CONNECTOR OFFERING

Glenair offers a complete range of miniaturized printed circuit board connectors with high-reliability TwistPin and spring-loaded solder-free contacts. We supply both through-hole and surface mount designs in every angle and mounting style for integration into single-sided, double-sided and multilayered flex circuitry.



### 3. APPLICATION DESIGN

Our turnkey rigid and flex circuit assemblies are produced to exacting specifications. Concepts and designs ensure the most advantageous utilization of EMI shielding, polarization, strain-relief and connector packaging technologies. The final design solution is optimized to meet the exact mechanical and electronic requirements of the target environment.

### 4. TERMINATION EXPERTISE

Glenair's experienced workforce is trained and qualified to produce consistently reliable circuit terminations using the most advanced techniques and technologies, including automated solder reflow systems.



## *Out of This World* **INTERCONNECT SOLUTIONS**

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Telephone: 818-247-6000 • Fax: 818-500-9912 • [sales@glenair.com](mailto:sales@glenair.com)

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