

# Exceptional Electronics Solutions

*DISHER has such a broad range of electronics capabilities. After working with their team and seeing the component layout of our new PCB, it's clear they know what they're doing.*

—Global Manufacturer of Office Furniture

## CAPABILITIES

### DISCOVER

Strategy & Product Development Consulting  
Product Market Research  
Product Roadmaps  
Proof of Concept Development  
Next Generation Technology

### DESIGN & ENGINEER

Software Design & Development  
Schematic & PCB Design & Development  
Mechanical Packaging & Trim Integration  
Prototype Development  
Internet of Things  
Mechatronics  
Lighting Design & Development  
Audio Systems Design

### MANUFACTURING TECH & LAUNCH

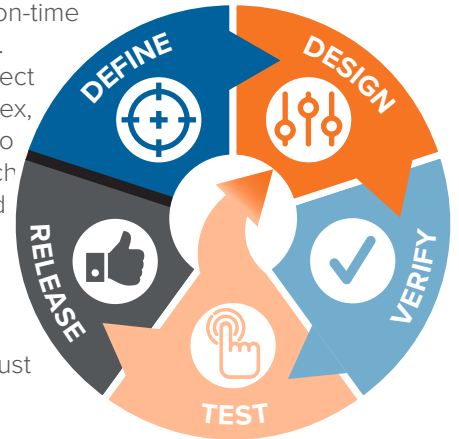
Testing & Verification  
Data Acquisition Solutions  
Flexible Resource Management  
Quality Engineering  
Continuous Improvement

*Let us help you develop your next electronics solution from initial concept to launch... and beyond.*

## WE PERFORM from concept to completion



DISHER is a nationally-recognized product development firm so we understand what it takes to fuse ideas into working products on-time and within budget. Whether your project is simple or complex, we have the tools to navigate through each stage— from ideation and defining specifications, through product design and prototype development, to testing and launch. We provide full-cycle project support with best practices and continuous improvement built right in. Trust DISHER to bring your next project to life.



### The Electronics Design Process

DISHER continually gathers and acts on feedback, verification, and testing data throughout the process to release the best possible outcomes.

## WE PROVIDE expertise and experience



DISHER hand-selects a design and engineering team that is right for every project. Our customers have grown to love our wide network of knowledgeable specialists: mechanical, electrical, software, automotive-centric electronics, ISO26262 certified, and validation engineers; project/program managers; advanced lighting technicians; electro-mechanical packaging experts, and others. Professionals with 30+ years of experience in systems, circuit design, and firmware development are ready to work for you. The folks at DISHER thrive on challenge and product innovation whether it's a new IoT concept, embedded software idea, updated electronics design, or anything in between. Bring it!

## WE PARTNER with our customers



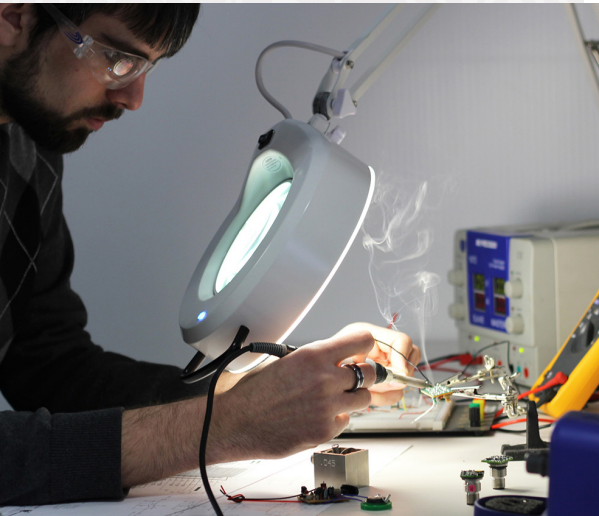
DISHER becomes an extension of our customer's staff throughout the life of the project. We're committed to a long-term, strategic relationship in order to provide the best service possible. We want our customers to receive an excellent customer experience by carefully managing the budget, completing projects on time, and delivering results that exceed expectations. Together, we can make a positive difference in the world around us.

*Making a Positive Difference®*

# ELECTRONICS CAPABILITIES

Our approach to electronics engineering involves three distinct areas of product development to help solve electronics challenges on-time and within budget, from complicated world-class systems to small PCB designs:

1. Discover
2. Design & Engineer
3. Manufacturing Tech & Launch



## DISCOVER

During this phase we work together to refine and define your goals. What challenges need to be solved? What ideas are being evaluated? What's your budget and timeline? The services we can provide during this phase include:

- Strategy & Product Development Consulting
- Product Market Research & Benchmarking
- Product Roadmaps
- Proof of Concept Development
- Next Generation Technology

## DESIGN & ENGINEER

Our design approach is a continuous loop of creativity, verification, and testing feedback to ensure the best possible outcome for your project. Our team offers limitless capabilities including:

### Software Design & Development

- Embedded Software Design
- Software & Firmware Development (C/C++/C#, Python, LabVIEW)
- Mobile App Development
- GUI/HMI Development

### Schematic & PCB Design & Development

- Circuit Design & Prototyping (Altium Designer, orCAD)
- Specification-focused Designs (EMC/EMI, UL, etc.)
- PCB Release Package
- Data Acquisition Systems
- Motor & I/O Command & Control - PLC Embedded Control Systems
- CAN & LIN Communications
- Analog Sensor & Display Interfaces

### Mechanical Packaging & Trim Integration - Prototype Development

We can create production-grade prototypes that encompass the full electronics package including plastic enclosures, bracketing, harnessing, and lensing. By pairing up PCB development with packaging design, we are able to verify designs and create the documentation needed to build production tools for your own facility.

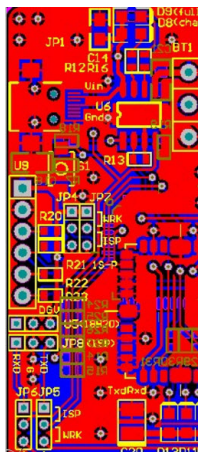
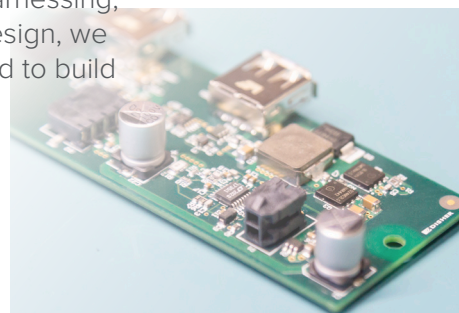
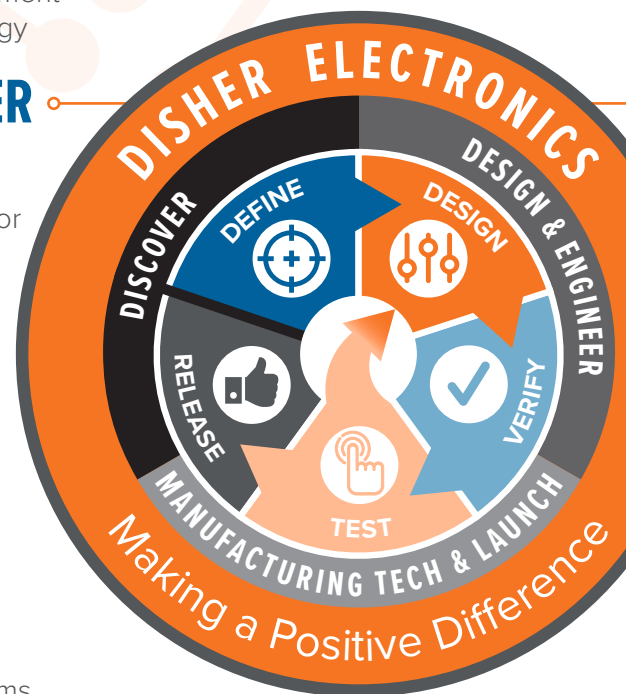
### Internet of Things

- Cloud-based Programming
- Wireless Solutions

### Mechatronics

### Lighting Development (LED & Laser Control)

### Audio Systems Design



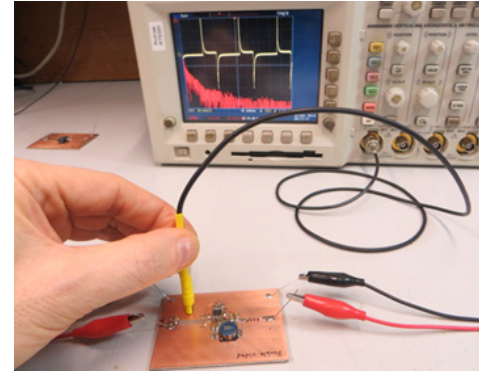
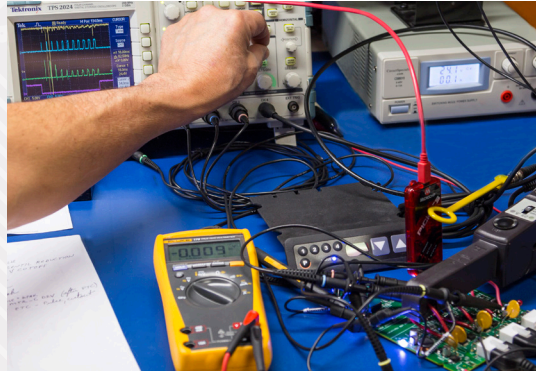
*"Thank you for the design files! I truly appreciate your passion to succeed and the relentless team collaboration throughout the process."* —Innovative On-Demand Lighting Manufacturer

# MANUFACTURING TECH & LAUNCH

The DISHER team can take product designs through prototype assembly and perform engineering-level tests in small but effective quantities. The team performs system level and circuit level troubleshooting, worst-case circuit analyses, simulation and environmental testing to mitigate risk, and provide confidence in the electronics designs. We will also tap into our extensive network of EMC test-site locations to verify designs against applicable ISO, IEC, FCC, and UL specifications.

## Testing & Verification

- Root-cause Identification
- LabVIEW VI Development for DV-level Testing
- Electromechanical Test Stand Development
- Test Box/EOL/Bed of Nails
- Lighting Analysis & Validation (CS-200 & CL-500)
- Thermal Chamber Testing
- LabVIEW & LabWindows CVI Programming
- Control Panel Wiring



## Flexible Resource Management

- Project & Program Management
- EMC Testing (Radiated & Conducted Emissions, ESD)
- Large Sample Environmental Testing

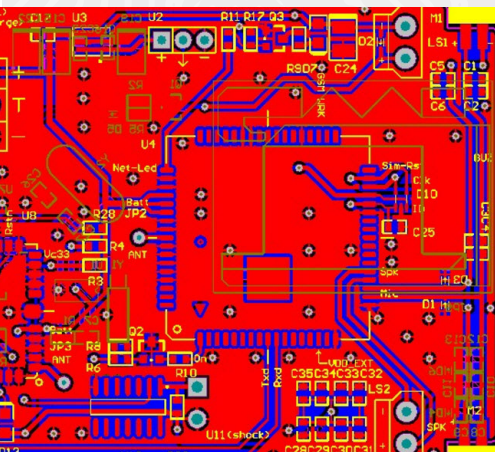
## Data Acquisition Solutions

## Quality Engineering

## Continuous Improvement

*"DISHER's design was great. With the new design, we now pass all conducted and radiated emissions tests."*

—Leading Consumer Product Manufacturer



## ELECTRONICS ECOSYSTEM



*We can't wait to explore new possibilities and make a positive difference with you!*

# Exceptional Electronics Solutions and More

Customers have been so pleased with DISHER's innovative electronics engineering and product development solutions that they've asked for input in other areas of their business. It's not just the geeky-side of the DISHER team that clients are drawn to— it's the intangibles like integrity, selflessness, and a strong sense of community. As a result, DISHER has organically grown to offer Talent Solutions and Business Solutions to help organizations reach their objectives. Who knows what DISHER and our customers will develop next to make a positive difference.

## TALENT SOLUTIONS

Because DISHER began as a product development firm, engineering is in our DNA. We understand and speak the language of technical professionals. If you are having a difficult time attracting and keeping qualified electronics or technical team members, let us know.

- Talent Attraction: Technical Screening; Interviewing; and Selection of Electronics Professionals
- Talent Retention: Onboarding and Training
- Talent Branding: Strategy; Culture; and Leadership Coaching

## BUSINESS SOLUTIONS

DISHER utilizes an holistic approach to building strong and sustainable companies. To grow and thrive, every element of an organization (people, markets, products, processes, and ROI) must work together. DISHER's *Integrative Business Solutions* employ a variety of structured tools, proven techniques, and knowledgeable talent to help organizations achieve systematic change and measurable growth by working from the inside out. Listed below are six specific areas of focus we could help you with:

- Electronics: EMC Analysis & Training; Hardware & Software Design Reviews; and ESD Planning
- People: Employee Value Stream; Onboarding Process; and Leadership ROI Coaching
- Market: Market Research; Product Portfolio Planning; and Branding Strategy
- Product: Ideation/Feasibility; Engineering Design; and Value Analysis & Value Engineering
- Process: Business Process Mapping; Lean Solutions; and Problem Solving
- ROI: Organizational Development<sup>ROI</sup>; Strategic Vision Mapping<sup>TM</sup>; and Performance Plan

### DISHER

DISHER is a nationally-recognized product development, talent attraction, and business consulting firm. Since 2000, we have helped hundreds of Fortune 500 companies, suppliers, and independent inventors successfully discover, design, engineer, and manufacture high-impact products and services.



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