



# MARSH

---

## Electronics, Inc.

**Innovative Solutions & Tailored Support**



800-926-2774 • [marshelectronics.com](http://marshelectronics.com)







**Delivering highly engineered HMI components and custom solutions for critical applications**



**INDUSTRIAL**

Factory Automation  
Machinery • Heavy Equipment  
HVAC • Food & Beverage



**AEROSPACE**

Control Panels  
Cabin Lighting • Power Systems  
Cable Assemblies



**TRANSPORTATION**

Off-Road Vehicles  
Emergency Vehicles  
Off-Highway Equipment • EV Chargers



**HOME AUTOMATION**

White Goods • IoT/Smart Devices  
Small Appliances  
Security/Safety Systems



**MEDICAL**

Medical Device Equipment  
Monitoring Systems • Diagnostics  
Lab Analysis Equipment



**COMMUNICATIONS**

Data Centers / Servers / 5G  
Commercial Audio Equipment  
Satellites • Rack Mounted Units



**CONTACT US**

[www.vcclite.com](http://www.vcclite.com)

# MARSH

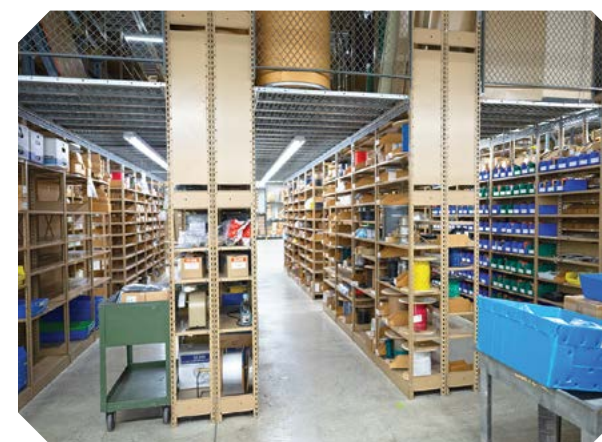
## Electronics, Inc.

Welcome to **Marsh Electronics**, where our company has been a leading source as an electronic and electromechanical distributor for 90 years.



**Marsh** is more than a components distributor. We specialize in offering innovative turnkey products for logistics, engineering and product production—focusing on our OEM customers' needs.

Our inventory is geared specifically for our valued customers whose markets include **Food & Beverage, Energy, Military, Industrial, Commercial & Off-Road Vehicles** and **Medical** applications.



As an essential component of **Marsh Electronics**, our Value Added Division, known as MarVac Assemblies, offers an array of assembly services, product customization solutions and quality support processes. These services not only streamline procurement and production processes, but also lower acquisition costs, and mitigate inventory liabilities, ensuring efficiency and cost-effectiveness for our valued clients.



**Marsh** boasts a remarkable array of value-added services. These services, including our flexible inventory management programs, are tailored to enhance the efficiency of supply chain operations and customer production. Our sterling reputation for excellence extends throughout the industries we serve, as well as among top-quality manufacturers.

**Marsh is dedicated to providing continuous value to our customers.**



# INNOVATED SUPPLY CHAIN SOLUTIONS

- Custom Assemblies
- Vendor Reduction Solutions
- Inventory Replenishment Program
- Component Application Development
- **Secure Inventory:** MKE1 Vertical Lift Module in our Milwaukee warehouse offers enhanced security through automated storage and retrieval, minimizing unauthorized access.



Marsh is committed to serving your unique and specific needs, no matter how complex they may be. Our technical expertise and engineering experience are sound and designed for optimum performance at a better savings.

Our team excels as problem solvers. What distinguishes Marsh is our capacity to deliver tailored solutions precisely aligned with your specific challenges, offering unparalleled adaptability. Our flagship in our Milwaukee warehouse, the MKE1, Vertical Lift Module, guarantees heightened security for our clients' inventory through seamless automated storage and retrieval processes, significantly reducing the risk of unauthorized access while maximizing overall protection.



- Wire Processing
- Cutting/Stripping/Marking of 4/O-26 AWG Multi-Conductor Wire
- Crimping: 1/O-26 AWG
- Wire Twisting: 14-26 AWG
- Harness Capabilities (Single Lead, Multi-Conductor)
- Ribbon Cable Assemblies up to 64 Conductor
- Indicator & LED Light Assemblies
- Terminal Block Assembly & Marking
- Kitting & Packaging
- Electromechanical Assembly
- Soldering RoHs
- Component Preparation
- Lead Tinning
- Ultrasonic Welding
- Potting



# MarVac ASSEMBLIES



MarVac Assemblies, **Marsh Electronics'** premier Value-Added Division, is dedicated to optimizing your production processes. With a focus on reducing costs, streamlining production timelines and consolidating component suppliers, we continuously refine our capabilities and processes to deliver ongoing savings.

In our approach, the focus isn't on maximizing customer spend but on maximizing the value we deliver throughout their journey with us.

***At Marsh, enhancing the customer's value is the cornerstone of everything we do.***



- WHMA/IPC A620 Certification •
- UL Recognized •



- Mechanical & Sub Assembly
- Wire Harness & Cable Assembly
- Box Builds
- Wire Processing
- Soldering
- Value Added Electronic Component Assembly
- OEM Contract Kitting
- Packaging & Fulfillment







## Components or Custom Solutions

Littelfuse has your Commercial Vehicle Application Covered



### Fuse Holders

Fuse holders accept fuses to provide electrical protection on circuits. Littelfuse offers a wide range of fuse holders for in-line, bolt-down, panel-mount, and PCB applications and with various levels of sealing from moisture and dust.



### Power Distribution Modules

Power distribution modules (PDMs) are devices that accept electrical power from one or more wires (inputs) and then distribute it to multiple cables (outputs).



### DC Contactors

High-current and high-voltage DC contactors and relays for electric, hybrid, and industrial applications such as charging station, battery power supply, DC power control, circuit protection, and other switch controls.



### Rockers

A wide array of rocker switches including sealed, small-sized, mid-sized, full-sized, and addressable. 1 to 4 poles, .4 VA to 20 amps. UL, CSA, TUV & VDE approvals.



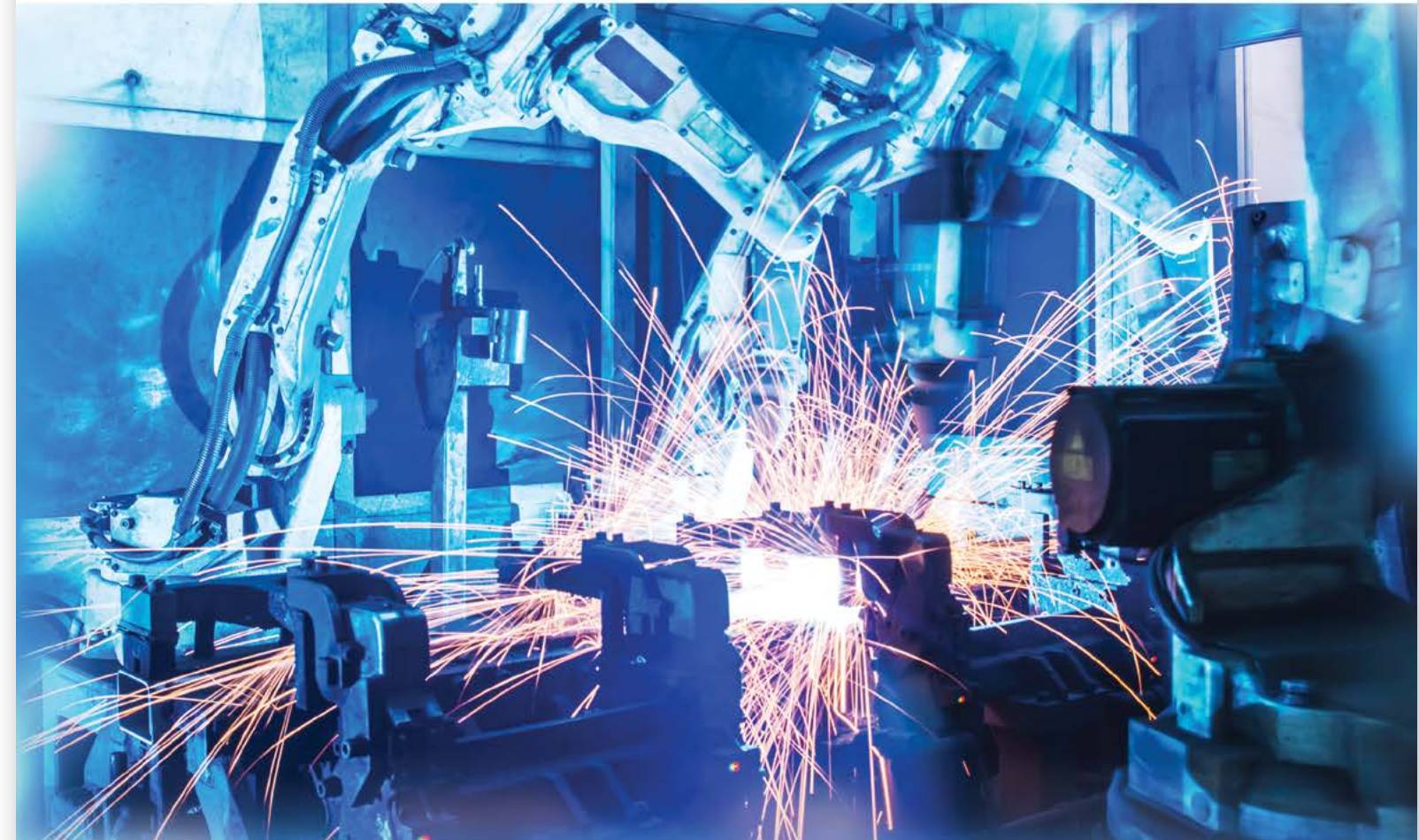
### Digital Switching

CAN/LIN, SAE J1939 digital switches are fully customizable and programmable. They eliminate the extra weight and cost of traditional wire harnesses.



### Hydraulic-Magnetic Circuit Breakers

Provides highly precise, reliable, and cost-effective solutions to most design challenges. Hydraulic-magnetic circuit breakers are considered temperature stable and are not appreciably affected by changes in ambient temperature.



## 7th Generation Industrial Power Semiconductors

WELDING | INDUCTION HEATING | INDUSTRIAL PROCESSES



Wide lineup now includes advanced modules with high frequency capabilities.

Solid Cover (SLC) package technology for high reliability and long thermal cycle lifetime.

Low Loss Mitsubishi Electric 7th generation CSTBT™ IGBT and RFC Diode technology.



View the latest catalog

Product Information & Resources Available at [Littelfuse.com/CVP](http://Littelfuse.com/CVP)

[meus-semiconductors.com](http://meus-semiconductors.com)



# OUR PRODUCT LINES

800-757-0800 • [marshelectronics.com](http://marshelectronics.com)

## AUDIO ALARMS

Challenge Electronics  
Mallory Sonalert Products  
PUI Audio

## BATTERIES

CSB Batteries  
Dantona  
Energizer/Eveready  
Evergreen  
Power-Cell (Zeus)  
Zeus Battery Products

## CAPACITORS

Aerovox  
Angstrohm (Vishay)  
Arcotronics (Kemet)  
ASC Capacitor  
Barker Microfarads  
BC Components (Vishay)  
Beyschlag (Vishay)  
BHC (Kemet)  
Bishop Electronics (Electrocube)  
Cera-Mite (Vishay)  
Chemi-Con  
Cornell Dubilier  
Dale (Vishay)  
Draloric (Vishay)  
Eaton  
Electrocube (Bishop Electronics)  
Esta (Vishay)  
Evov/Rifa (Kemet)  
GE Capacitor  
Illinois Cap (CDE)  
Integrated Products (Vishay)  
Kemet  
Knowles (CDE)  
LS Mtron  
Mallory (CDE)  
Marcon (Chemi-Con)  
Meritek  
NEC Tokin (Kemet)  
Nichicon  
RCD Components  
Roderstein (Vishay)  
Rubycon  
SB Electronics (CDE)  
Semiconductors (Vishay)  
Sfernice (Vishay)  
Siliconix (Vishay)

Spectrol (Vishay)  
Sprague (Vishay)  
Surge Components  
Techno (Vishay)  
Thin Film (Vishay)  
VCS (Vishay)  
Vishay  
Vitramon (Vishay)

## CHEMICALS

Chemtronics  
Tech Spray

## CHOKES, COILS & INDUCTORS

BI Technologies  
Dale (Vishay)  
Hobart Electronics  
NEC Tokin  
RCD Components  
Stackpole  
Triad  
Vishay

## CONNECTORS & TERMINALS

3M (ESM)  
Adam Tech  
Altech  
Amphenol (RF Division)  
Beau (Molex)  
Brad Harrison (Molex)  
Bulgin (Elektron)  
Conta-clip  
CONXALL  
Cooper Wiring (Eaton)  
DDK Connector  
(Division of Fujikura America)  
Hella  
ICM  
JST  
Leviton  
Lumberg  
Methode Power Solutions  
Molex Industrial Products  
Mueller  
Neutrik  
Panduit  
Philmore  
Pomona Electronics

Sealcon  
Spacecraft Components  
Stereon  
Switchcraft  
Woodhead (Molex)

## CRYSTALS/ OSCILLATORS

Ecliptek (ILSI)  
Vishay

## EMI/RFI FILTERS

Curtis Industries  
Mechatronics  
Mega Electronics  
QualTek

## ENCLOSURES

Altech  
Bud Industries  
Conta-clip  
Sealcon  
Stego

## FANS & BLOWERS

Cooltron  
GardTec  
Mechatronics  
Mitsubishi  
Orion/Knight Electronics  
QualTek  
Rosenberg/ETRI  
Sanyo Denki America  
Stego

## FUSES & CIRCUIT BREAKERS

Altech  
Bulgin (Elektron)  
Bussmann Automotive Products  
(Eaton)  
Carling Technologies  
Cooper/Bussmann (Eaton)  
EE Controls  
E-T-A  
Littelfuse  
Littelfuse - Commercial Vehicle  
Mechanical Products  
Wickman Fuses (Littelfuse)

## HARDWARE

Abbatron/HH Smith  
Altech  
APEM  
Hellermann Tyton  
Heyco  
Keystone  
Mueller  
Panduit  
Rogan  
Sealcon  
Speco  
Superior Electric

## HEAT SINKS & EXTRUSIONS

Cooltron  
Fecon  
FEMA Electronics

## KEYBOARDS & KEYPADS

Cherry Americas  
EAO  
FEMA Electronics  
Grayhill

## LAMPS, DISPLAYS & LEDs

ABL Lights  
American Bright  
Chicago Miniature (VCC)  
Dialight  
EAO  
Emerging Display Technologies  
Everlight  
FEMA Electronics  
Hella  
IEE  
IDI/Chicago Miniature (VCC)  
Lee Craft (VCC)  
Leviton  
Lighting Components & Design (VCC)  
Lumex  
Newhaven Display  
Optek (TT Electronics)  
OptoElectronix  
Solico  
Stego  
SunBrite  
VaOpto  
VCC  
Vishay

## METERS & INSTRUMENTATION

Fluke  
Philmore  
Teledyne FLIR  
Veethree  
Vishay

## MICROPHONES

PUI Audio

## POWER CONDITIONING

APC  
Superior Electric  
Sola

## POWER SUPPLIES

Altech  
Philmore  
Mega Electronics  
QualTek  
Sola/Hevi-Duty  
Triad

## RELAYS & SOCKETS, TIMERS & I/O MODULES

Altech  
American Zettler  
ATC Diversified  
CIT Relay & Switch  
Comus International  
Custom Connector Corporation  
Deltrol  
Diversified Electronic (ATC)  
Grayhill  
Hella  
Marsh Bellofram (ATC)  
Sanyou Relays  
Schneider Electric  
Song Chuan  
Stancor (White Rodgers)  
Struthers Dunn

## RESISTORS, NETWORKS, TRIMMERS & POTENTIOMETERS

Alps  
BC Components (Vishay)  
BI Technologies (TT Electronics)  
Dale (Vishay)

Draloric (Vishay)  
Huntington Electric (Vishay)  
Mepcopal (Vishay)  
Meritek  
Milwaukee Resistor (Vishay)  
Phoenix Passives (Vishay)  
RCD Components  
Riedon  
SEI (Stackpole)  
Sfernice (Vishay)  
Spectrol (Vishay)  
VCS (Vishay)

## SEMICONDUCTORS

America Semiconductor  
CKE (Dean Technologies)  
Comchip  
EDI  
IXYS (Littelfuse)  
Mitsubishi Electric  
Powerex  
Sirectifier  
Surge Components  
Teccor (Littelfuse)  
Vishay

## SERVO SYSTEMS

Sanmotion

## SOLENOIDS

Cole Hersee (Littelfuse)  
Deltrol  
Electroswitch/OAK Grigsby

## SOUND & SECURITY

Apollo Video Technology  
Challenge Electronics  
Elyssa  
PUI Audio  
Speco Tech

## SWITCHES

Alps  
Altech  
Apem Components  
APM Hexseal  
Arcoelectric (Elektron)  
BACO Controls

Bulgin (Elektron)  
Cherry Americas  
CIT Relays & Switches  
Cole Hersee  
Comus International  
E-Switch  
EAO  
Eaton Commercial Controls  
Electroswitch  
Grayhill  
Lamb (E-Switch)  
Littelfuse-Carling  
Marquardt  
NKK Switches  
OTTO  
Safran Electrical & Power  
Switchcraft  
ZF Electronic Systems (Cherry)

## TERMINAL BLOCKS

Altech  
Conta-clip  
Cooper/Magnum (Eaton)  
Cooper/USD (Eaton)  
Curtis Industries  
Custom Connector Corp.  
Metz Connect (RIA Connect)  
Molex Industrial Products  
Reliance North America

## TEST EQUIPMENT

Exttech  
Fluke  
Teledyne FLIR

## TOOLS

AIM Electronics (Cinch)  
American Hakko  
ICM  
Paladin Tool  
Platt Luggage

## TRANSDUCERS/ SENSORS

Alps  
Altech  
Challenge Electronics  
Cherry

Comus International  
Eaton  
Hamlin (Littelfuse)  
Molex  
Optek (TT Electronics)  
POSITAL Fraba  
PUI Audio  
Vishay

## TRANSFORMERS

BI Technologies (TT Electronics)  
Dale (Vishay)  
Hobart Electronics  
Superior Electric  
Triad  
Vishay

## VARISTORS

CKE (Dean Technologies)  
Chemi-Con  
HVCA (Dean Technologies)  
Littelfuse/Teccor  
Meritek  
Stackpole  
Vishay

## WIRE, CABLE, CORDS & TUBING

3M (ESM)  
Alpha  
Avery Dennison  
Belden Wire  
Carol Cable  
Cooper Wiring Devices (Eaton)  
General Cable  
Hellermann Tyton  
Leviton  
L-Com  
Manhattan Wire  
Marinco  
Mega Electronics  
Methode Power Flex Cable  
Nordx/Belden  
Panduit  
Philmore  
QualTek  
Volex





**MARSH**  
Electronics, Inc.

# TOP-QUALITY BRANDS

At **Marsh Electronics**, we proudly collaborate with Authorized industry-leading manufacturers renowned for their reliability and innovation. With Authorized manufacturer relationships, **Marsh** is committed to reducing risk and providing counterfeit-free products to our valued customers.

In the dynamic landscape of electromechanical components, we stay ahead of the curve by embracing product enhancements and cutting-edge innovations to best serve our customers' evolving needs.



**PANDUIT** Take Productivity to New Heights

## NEXT GENERATION PAT 4.0 CABLE TIE SYSTEM

*Productivity is critical when it comes to high-volume harnessing, assembly, fastening, and packaging applications.*



**The PAT 4.0 Cable Tie System drives productivity through:**

1. Industry-leading cycle times are 25% faster than other automatic cable tie systems.
2. User-friendly icon-based LCD touchscreen simplifies user navigation.
3. Lightweight Ergonomic Tool Head reduces operator fatigue.

[cs@panduit.com](mailto:cs@panduit.com)

[www.panduit.com](http://www.panduit.com)



OTTO Controls'  
**Powerhouse Lineup**  
tackles the most demanding applications

**OTTO**

[www.otto-controls.com](http://www.otto-controls.com) | Scan to shop OTTO products with MARSH



## Capacitors for Power Electronics

**Advanced Capacitor Technology**

- Aluminum Electrolytic
- AC Film
- DC Film
- RF Mica
- Supercapacitors



[www.knowlesc capacitors.com](http://www.knowlesc capacitors.com) | [www.cde.com](http://www.cde.com)

**knowles** | **CDE**

MORE POWERFUL TOGETHER





# CUSTOM SOLUTIONS

TT Electronics is a global provider of engineered electronics for performance critical applications.

Our team of design and application engineers provide unsurpassed technical and systems level expertise unique to your specific needs.

Our world-class operations facility combines automation with customized manual assembly proficiency to achieve optimal quality.

## PERFORMANCE REQUIREMENTS SCREENED BY TT ELECTRONICS:

### Optoelectronic Requirements

- TSAT, MIL-PRF-19500
- MIL-PRF-38535
- MIL-STD-750/883

### Passive Component Requirements

- MIL-PRF-55342
- MIL-PRF-83401
- MIL-PRF-39023D
- MIL-PRF-12934J
- RTCA/DO-160G
- DSCC
- AEC-Q200
- EN1/CECC-40101
- CECC40201
- CECC40203



[www.ttelectronics.com](http://www.ttelectronics.com)

## CUSTOM POTENTIOMETERS



### Mechanical Customization

- Custom Shaft
- Custom bushing and/or housing
- Mechanical angle
- Stroke length
- Detents
- Switch and/or terminal type
- Sealing
- Rotation torque



### Electrical Customization

- Electrical travel
- Electrical angle
- Custom output conformity
- Linearity
- Total resistance tolerance
- Center tap



### Value-Add Customization

- Custom wire harness
- Custom connector
- Mounting brackets for PCB

## Have You Found the Right Customization Partner?

## CUSTOM OPTOELECTRONICS



### Wiring Harness & Connectorization

- In-house cable assembly and test area
- Manual assembly and soldering with trained and certified operators
- Wide variety of cabling experience including:
  - single multi-conductor
  - ribbon cable
  - jacked cable assemblies



### Custom Sensing Capabilities

- Design of precision optical sensors
- ASIC and custom package design
- Plastic housing design
- In-house plastic molding
- Automated custom testing
- Agency compliance testing
- Environment testing

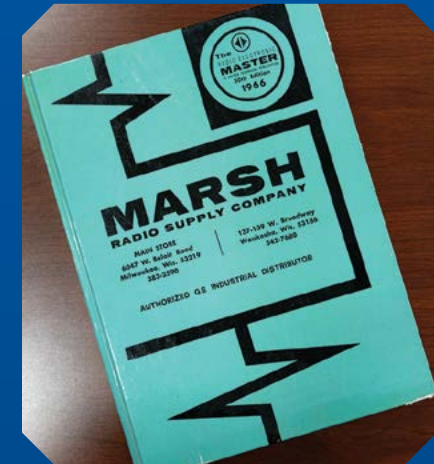


### Create Your Own Design

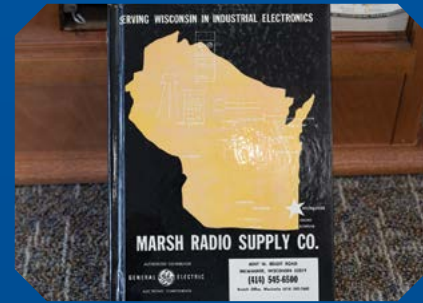
- Design, sourcing and in-house injection molding of custom plastic housing
- Custom automated test, inspection and measurement available
- Laser trim capability
- Automated PCV assembly including surface mount and through-hole components with two-sided device mounting



# A PROUD HISTORY



**Marsh Electronics** traces its roots back to the mid-1930s when it was established as Marsh Radio Supply by Earl Marsh and his partner, Kathleen Meeks. Following their passing in the 1960s, Al Essmann assumed ownership.

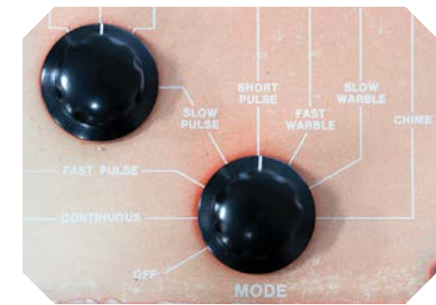
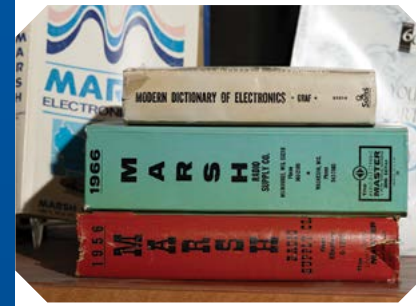
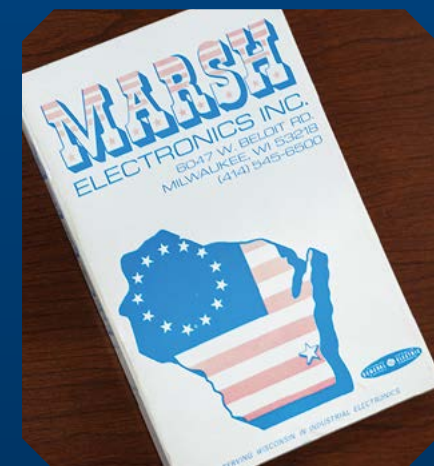


James W. Banovich took the helm from 1993 to 1996, coinciding with a merger with Serling Electronics. Subsequently, Serling was acquired by Marshall Industries in 1997. However, **Marsh Electronics** reemerged as an independent entity in December 1998 under the ownership of Jim and Steve Banovich along with John Casper.

Upon John's retirement in 2018, Jim and Steve assumed full ownership. Initially, Marsh Radio Supply operated as a storefront catering to communication, dealership, repair, and hobbyist customers. As of the early 1960s, Marsh diversified its focus to include Industrial OEM segments, experiencing continuous growth until the early 1980s. With the decline of TV and radio dealerships in the mid-1980s, **Marsh** shifted its attention towards serving as an OEM supplier, specializing in active and power semiconductors, passives, electromechanical products, and interconnects.

In 1998, upon its re-establishment, **Marsh Electronics** opted to discontinue support for active semiconductors but retained its focus on electromechanical products, passive components, interconnects, and power semiconductors. This new direction focused the company's efforts on product solutions that were not confined to printed circuit boards.

During the early 1980s, **Marsh** initiated value-added services for customers, which evolved into MarVac Assemblies. In the 2010s, MarVac further diversified its portfolio, venturing into electromechanical subassemblies and cable harnesses, expanding its capabilities and product offerings.



In the early 2000s, **Marsh** embarked on an expansion initiative, establishing new branches in other states including Chicago, Minneapolis, Indianapolis, Cleveland, and Columbus.

Today, **Marsh Electronics** remains at the forefront of the industry, continually evolving to meet the needs of the OEM segment and maintaining a legacy of specialized services.



## LOCATIONS

**Milwaukee, WI  
Corporate Office**  
1563 S 101st Street  
Milwaukee, WI 53214  
414-475-6000  
800-926-2774



### BRANCH LOCATIONS

**Appleton, WI**  
920-757-0800

**Minneapolis, MN**  
651-452-0218

**Chicago, IL**  
847-885-0475

**Columbus, OH**  
614-488-0002

**Cleveland, OH**  
414-475-6000

**Tampa, FL**  
727-858-9010

**Noblesville, IN**  
317-774-1496







# OPTOELECTRONIX, INC.

CALIFORNIA USA

## One Stop Customization

### LED LUMINAIRES

Design and manufacture from prototypes to finished products inclusive of PCB Artwork, Electronics, Photometrics, Thermals & Mechanicals

### INJECTION MOLDED PLASTICS

High Precision & Low pressure plastic molding to global market

### WIRE HARNESSSES

Low Volume - High complexity  
High Volume - Mass production

### MANUFACTURING FACILITIES

Penang - Malaysia

UL, CSA, NSF/ANSI, CE, ISO 9001, TS 16949, ROHS

**NEW** **ULF83000 SP LUMINAIRES**

- Customized for Paint Booth Lighting
- UL Class 1 Division 2
- IESNA LM80 Certified LEDs
- IP65
- ROHS Compliant



Halogen and Fluorescent Lights outlawed in some US States!  
OptoElectronix offers standard as well as high temperature lights and luminaires customized to your needs.



**OPTO**  
electronix

www.optoelectronix.com  
sales@optoelectronix.com  
+1 (408) 2306795

# VEETHREE ELECTRONICS

- / Displays
- / Gauges
- / Digital Switching
- / Instrument Clusters
- / Sensors and Senders



veethree.com | sales@veethree.com

**VEETHREE**  
GROUP



# Simplified systems. Optimized performance.



Scan to learn more.

As more components move toward electrification, on and off-highway OEMs are turning to our **connected vehicle solutions**. Our robust portfolio of products range from off-the-shelf catalog components to fully customized, next-generation systems that simplify complex operations and optimize performance.

©2024 District Publishing 586.884.2400 www.districtpublishing.com



## Vehicle controls

Switching devices with enhanced CAN communications



## Power distribution

CAN-based relay control and circuit diagnostics



## Power conversion

DC/DC converters, equalizers and DC/AC inverters



Powering Business Worldwide

©2024 Eaton. All rights reserved.