Esterline
Interface Technologies

Technology
Innovation
Performance

Profile

Esterline Interface Technologies is a global group of companies specializing in the design and manufacture of innovative touch, sensing, and control human interface systems for leading original equipment manufacturers. We define the user experience for specialized medical equipment, advanced military and security solutions, industrial equipment, high tech gaming applications, and custom designed input components.

Experience
- 50+ years in custom manufacturing
- Leading edge technology integration

Product Design
- Complete suite of services
- Global value: US, Europe, Asia - design, manufacturing and materials management

Risk Management
- Proven new product introduction process (NPI)
- Rigorous product qualification and validation process (DVT)
- Prototyping

Value Engineering
- Design for manufacturability and service
- Product simplification
- Part count reduction

Product Lifecycle Management
- Program management
- Obsolescence management
- Replacement part stock
- Flat rate repair service agreements

Customized Fulfillment Programs
- Ship from stock
- Upgrades and refurbishment
- Inventory management

HAPTICS

IN-VITRO

TOUCHSCREENS

OLED

CAPACITIVE

DURASWITCH®

MULTI-TOUCH

Markets and Applications

ELASTOMER

VANDAL RESISTANT

BACKLIGHTING

DISPLAYS

Medical
- Medical control panels specializing in:
  - Ultrasound, X-Ray, Radiography, CT Scan, MR Scan
- Medical diagnostics specializing in:
  - Home Care, Point of Care, Laboratory
- Medigenic® Infection Control Keyboards
- Medigenic® Scroll Mouse

Defense and Security
- Land/Sea vehicle switches and panels
- Secure communications
- High-end rugged devices
- Soldier wearable
- Unmanned aerial vehicle (UAV)
- Handheld remote controls
- Marine security and control
- MILSPEC or COTS

Industrial
- Entertainment lighting and sound controls
- Industrial data input controls and terminals
- Kiosk vandal proof keyboards and keypads
- High end appliance controls
- Commercial food service
- Airline passenger controls
- Stockbroker terminals
- Treadmill control panels
- High end home automation

Gaming
- Casino gaming OLED button panels
- Touchscreen controls
- Player tracking interfaces

Cross Industry
- Capacitive and resistive touchscreen integration
- Haptics touchscreen technology
- Vehicle control systems
- Rugged, sealed, integrated products

Consistent Collaboration

Collaborative design environment includes electrical, mechanical, manufacturing, and test engineering

Esterline Interface Technologies manages every phase of your product life cycle, from initial design to aftermarket services. Our design through production cycle process provides customers with a focused time-to market advantage. Our engineers collaborate with you through product development (design, manufacturability, and reliability) to ensure products are introduced dependably and rapidly. Complex product range and superior price performance contribute to our overall value proposition.

Value Added Services

Risk Management

- New product introduction - project scope, schedule, specifications, and cost targets
- Test and validation - in house test equipment and facilities
- Supply chain - domestic and off-shore suppliers

Value Engineering

- Design for manufacturability, industrial design, product simplification, RoHS conversion, and part count reduction

Product Life Cycle Management

- Project management ownership
- Obsolescence
- Product upgrade/refurbishment
- Service agreements

Training and Technical Support

Esterline Project Management — Product Development: R & D, Product Design, Prototype, Production Ramp, Service/Support

1949 Bronner Screen Printing (Memtron) founded

Leach (LRE) GmbH founded

Esterline Technologies founded

Leach started Nördlingen facility

1955　　　　1960　　　　1965

Global Technologies

Global

Esterline Interface Technologies has design and manufacturing facilities located in Coeur d'Alene Idaho, and Frankenmuth Michigan in the USA, Nördlingen and Munich in Germany, and Shanghai in China.

Our order fulfillment capabilities encompass North America, Europe, Brazil, Russia, India, and China.

Technologies

- Touch, sensing, and control
  - Projected and mutual capacitive
  - Multi-touch and haptic
- Touch screen and LCD
  - Resistive, surface capacitive, analog, and digital matrix, multi-touch resistive
- Configurable switches
  - Dual stage, passive and active
  - Membrane (backlit, sealed, flexible)
- Duraswitch Technologies
  - PushGate®; thiNcoder®
- Control
  - Trackball, joystick, touchpad, pointing device, keypad, encoder, and display
- Elastomeric keypads and seals
- Audio Fidelity (speakers and microphones)
- Optical detection (CMOS/CCD camera, line sensors, photomultiplier, photodiode)
  - Reflectance, fluorescence, chemiluminescence
- Electrochemical detection
  - Amperometry/voltametry, magnetic beads
- Liquid handling robotics
  - Precise pipetting with level sensing
- Specimen and reagent handling
- Temperature control measurement media

Leach develops 1st blood glucose meter

Leach develops blood glucose meter for clinics

LRE Medical separates from Leach

LRE moves into Nördlingen facility

Bronner Screen moves to Weiss St. in Frankenmuth

LRE introduces meter to analyze urine
Advanced Input (AIS) founded
AIS 1st product - full travel keyboard

LRE 1st semiautomatic blood meter
Bronner Screen becomes incorporated

AIS adds non-tactile membranes

AIS builds 750K IBM PC Jr. keyboards
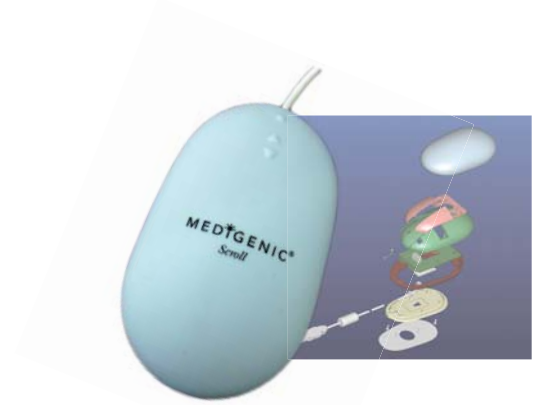Bronner Screen becomes Memtron

1970   **1975**   **1980**

Custom Capabilities

Mechanical Design
- 2D and 3D computer aided design
- 3D printer for quick turn prototypes
- Custom actuators, controls, and fittings
- Harsh or sterile environments

Electronic Design
- Proven reusable interface technology
- Standard and proprietary interfaces
- Custom embedded control software
  - Single board computer
  - Software navigation development
- Firmware design
- Audio/video integration
- Speech recognition
- Expansive backlighting solutions

Manufacturing
- Complete printed circuit board assembly
  - SMT, automated selective soldering
- Fabrication
- Lamination, die cutting, embossing
- Product decoration
  - Laser marking/etching, tampo printing, in-mold decorating, and color match
- CNC machine center
  - Molds, tooling, and fixturing

Quality Assurance
- New product introduction process (NPI)
- Highly accelerated life testing (HALT)
- Highly accelerated stress screening (HASS)

LRE introduces the Reflolux II

Memtron adds PCB backed membrane switches

AIS changes focus to custom input products

AIS adds elastomer capability

Memtron moves into new facility on Franklin in Frankenmuth

AIS adds SMT and laser cutting capapility

Memtron adds laser cutting capability

AIS moves to current CdA site
Memtron acquired by Esterline

Advanced Input acquired by Esterline

| 1985 | 1990 | 1995 |

Operational Excellence

Fast - Predictable - Economical

Esterline Interface Technologies facilities manufacture full-featured, complex human interface devices. Producing a custom solution to your specification requires development with a comprehensive set of deliverables and a proven methodology for manufacturing.

Esterline Interface Technologies in-house fabrication and assembly capabilities reduce cycle time, inventory cost, and always focuses on customer needs.

Continuous Process Improvement

Interface Technologies LEAN manufacturing competencies drive continuous improvement through reduced inventory, improved quality, lower costs, reduced space requirements, and shorter lead times.

We continue to increase efficiency using LEAN techniques to improve the utilization of human and physical resources to increase productivity, add flexibility, simplify scheduling, and increase overall capacity.

Compliance
- ISO 9001 design certified
- ISO 13485 certified
- International standards
- Industry specific standards
- RoHS compliance
- FDA certified

2000

AIS wins $10.9M contract for Master Vehicle Light Switch

Esterline Input Devices Shanghai founded
LRE Medical acquired by Esterline

2005

AIS introduces Medigenic Medical Keyboard

Memtron adds clean room facilities

LRE launches Compact Point-of-Care

Medigenic wins Medical Design Excellence Award

AIS adds 54,000 sq. ft. to facility

2010

LRE celebrates 50 years
Esterline Interface Technologies completes Sales and Branding integration

Esterline

Interface Technologies

Americas		Europe	Asia
Headquarters		Hofer Straße 5	Caoheijing High Tech Park
600 W. Wilbur Avenue	530 N. Franklin Street	D-86720 Nördlingen, Germany	6th Floor, Block 87,
Coeur d'Alene, ID 83815	Frankenmuth, MI 48734	+49 (0) 9081 800-1	No. 1199 Quin Zhou Bei Road
208-765-8000	989-652-2656		Shanghai, China

eit.sales@esterline.com
www.esterline.com/interfacetechnologies