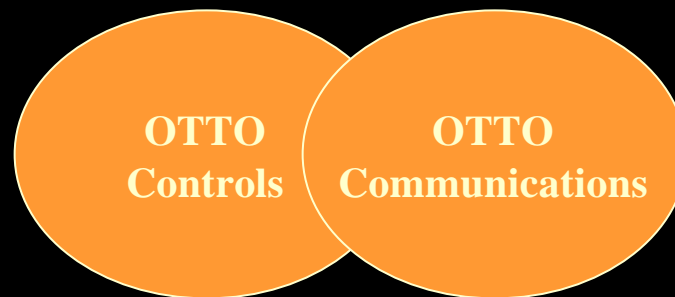


OTTO Engineering, Inc.

- Company founded in 1961
- OTTO Controls Division
 - *Mission to design and manufacture switches and electronic controls for demanding applications*
- Introduced communication products in 1991
- OTTO Communications Division founded in 1997
- Acquired Sonic Communications 1999



Common Vision: Enhancing the man to machine interface

OTTO's Strengths

Vertically Integrated Design and Manufacturing ...

Engineering

- Strong mechanical, electrical and RF design capability
- Comprehensive audio, environmental and electrical endurance testing facility in-house

Manufacturing

- Injection molding
- Die stamping
- Six axis CNC machining
- Cable assembly and overmolding
- Electronic assembly
- 200,000 square foot manufacturing facility

Mechanical Design

- Pro Engineer CAD/CAM system
- COSMOS software for design simulation and verification (FEA)
- Extensive experience in “packaging” radio accessories including human factor design
- Application specific field research and beta sites in Fire, Law Enforcement, Industrial, Dispatch and Retail Markets
- In-house machined resin rapid prototyping capability
- Cable interface solutions including kevlar and coiled coax
- Blowing rain (40mph) and immersion rated seals

Electrical Design



- Electrical endurance testing
- Digital & analog radio interface electrical circuit design
- PCB layout
- Microprocessor development
- Rapid prototyping

Acoustical Testing



- In-house acoustic lab with B& K and Audio Precision test equipment
- Field testing at end-user sites and focus group A/B comparison testing
- Adjustable sensitivity incorporated into products
- Benchmark audio performance data from competitive accessories and radios
- Full portfolio of acoustic elements including speakers, mics, grill seals, earphones and related components

ISO 9001 Certified Quality System

- Lot traceability from raw material to finished assembly
- Manufacturing date codes on every product
- New product introduction process
 - Design reviews
 - FMEA's
 - Verification testing
 - Validation testing

LMR Market Coverage

OTTO designed and tooled interfaces to the most common Two-Way portable platforms including...

- Motorola
- M/A-COM
- Kenwood
- Maxon
- iCOM
- Thales
- Bendix
- King/Relm/Uniden
- Yaesu/Vertex
- Tait Electronics
- EF Johnson / Transcript
- Simoco

Markets Served

All 2-Way Portable Radio Users are Potential Customers!

- Public Safety
- Security
- Transportation
- Utilities
- Manufacturing
- Industrial
- Recreational
- Hospitality
- Construction
- Radio Rental Agencies
- Mining Industry

Communications Portfolio

- **Surveillance Accessories**

- Earphone Kit (Listen Only)
- Two Wire Palm Mic Kit
- Two Wire Earbud Kit
- Three Wire Mini lapel Mic Kit
- Wireless Ear Receiver
- Inductive Neck Loop
- Flat Pack Inductor

- **Lightweight Headsets**

- Lightweight Dual or Single Muff
- Breeze
- Explorer

- **Heavy Duty Headsets**

- Over & Behind the Head Styles
- ClearTrak
- Ranger
- Hurricane

- **Speaker Microphones**

- Genesis
- Evolution
- Profile
- Legacy

- **Tactical Fire/EMT**

- Throat & Skull Microphone

- **Dispatch Headsets**

Surveillance Accessories



- One Wire Earphone Kit
 - Ideal for those applications which require listen only



- Two Wire Earbud
 - Provides miniature PTT and microphone with earbud style earphone
 - Designed for hospitality and retail market

Surveillance Accessories (Con't)



- Two-wire Palm Mic kit p
 - Provides remote push-to-talk and microphone in one element
- Three-wire Mini Lapel
 - Provides a separate barrel push to talk, microphone and earphone



- All have Kevlar reinforced cable assemblies and overmolded strain relief
- Ideal for security, SWAT and other applications which require discrete communications

Optional Surveillance Accessories



- **Noise Attenuating Kits**
 - Offer 24dB noise reduction (NRR) for any Surveillance Kits



- **Flexible Open Ear Inserts**
 - Molded to fit entirely inside the ear
 - Ideal for individuals wearing accessories for long periods of time or needing to hear ambient noise



- **Quick Disconnect Adapter**
 - Allows multiple users to quickly remove earphones
 - Improves cable retention

Wireless Receivers



- **Wireless Ear Receiver**
 - Can be used with either a Neckloop or Flat Pack
 - Fits securely in your ear
 - Available in conventional or squelched versions
 - Flat Pack allows wireless receive transmission when used with a Wireless Receiver
 - Ideal for SWAT & Security teams



Inductive Neckloop



Flat Pack

Lightweight Headsets



- Lightweight Padded Headband
 - Single or Dual Muff Available
 - Flexible rotating boom microphone
 - Ideal for event coordinators, light industrial, hotel and recreation

- Lightweight Metal Headband
 - Single Muff Only
 - Flexible rotating boom microphone
 - Ideal for event coordinators, light industrial, hotel and recreation



Lightweight Headsets

- Breeze

- Lightweight behind-the-head style band
- Flexible boom microphone
- In line or remote PTT switch available
 - Remote PTT: Ring, Barrel & 80MM Body PTT
- Ideal for bike patrols, hospitality, and recreation



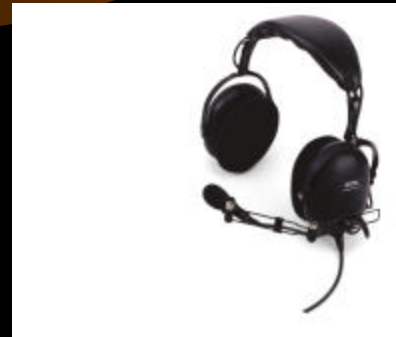
- Explorer

- Soft molded rubber earhanger style headset
- Quick disconnect acoustic tube
- Optional earphone choices
- Ideal for retail, hospitality & restaurants



Heavy Duty Headsets

- Over-the-head and behind-the-head styles
- High noise protection- 24 dB Noise Reduction Rating (NRR)
- Flexible boom with noise canceling electret mic
 - Standard heavy duty headsets 3dB
 - ClearTrak 19dB
 - Ideal for construction site foremen, airport personnel, racing teams and any others in a high noise environment



- ClearTrak

- Single Muff



Heavy Duty Headsets (Con't)

- Ranger
 - Behind the head style, single ear
 - Water, wind and dust proof
 - Noise Canceling Microphone
- Hurricane
 - Behind the head style
 - High noise performance of heavy duty headset without the weight
 - Noise-canceling mic element
- Ideal for SWAT, public safety, & marine patrol, Bike patrols & heavy duty manufacturing



Genesis Speaker Mic

- Watertight speaker microphone (IP68)
- Removable front grill
- Large PTT for use with gloves
- Options include:
 - Antenna with coiled coax cable
 - Emergency button
 - Watertight Modular accessory jack option
 - Skull mic
 - Throat mic
 - Ranger Headset
- Key target markets include Fire (SCBA and Hazmat), specialty law enforcement, high-end industrial and military users



Evolution Speaker Mic

- Mil-810F Driven Rain
- Immersion option
- Antenna option
- Coiled coax cable option
- Emergency button option
- Two Position Volume control
- Earphone jack
- Ideal for fire, police, utility & heavy industrial users



Profile Speaker Mic

- Meets same specs as Evolution with less features
 - No volume control
 - No optional emergency button
- Earphone jack
- Quality coil cord w/ 40lb pull rating
- Ideal for crowd control, construction site foreman, or plant engineers



Legacy Speaker Mic

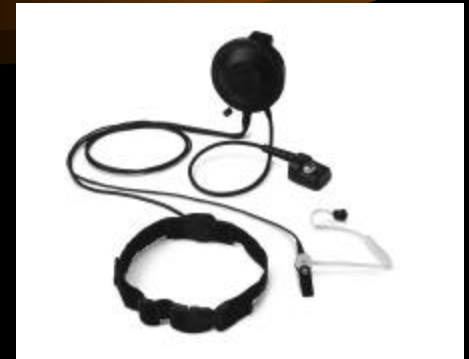
- Sized to match smaller, lower tier radios
- 40lb pull strength
- Earphone jack
- 1 million cycle PTT
- Lightweight 3.38 oz.
- Low cost
- Ideal for retail applications, light industrial, hospitality & recreation



Throat and Skull Microphones

- **Throat Microphone with Acoustic Tube**
 - Microphone element picks up even a whisper
 - 80MM Body PTT allows easy transmission while wearing gloves
 - Additional ear inserts available
 - Ideal for tactical applications

- **Skull Microphone with Ear Cup Receiver**
 - Picks up voice through bone vibrations
 - 80MM Body PTT Standard
 - Ideal for use with breathing apparatus applications



Dispatch Headsets

- Modular in-line push-to-talk switch that allows interface to various headsets
 - Breeze style headset
 - Lightweight headset
- Three position volume control
- Mute button
- Replaceable Extended coil cord
 - (10' 15' & 25' lengths)
- 6-wire standard 2 prong modular plug for easy connection to console



Why Choose OTTO?

OTTO's background and vertical integration is aligned to help customers achieve

- Quality accessories at a competitive price
- Rapid growth in the accessory market
- Quick response time and application specific solutions
- Innovative products and technologies
- Expansive product portfolio to meet market needs

Information & Services



Information

- Visit our Internet web site at <http://www.ottoeng.com>
- E-mail us ~ comsales@ottoeng.com

Services

- 15 Month Standard Warranty
- 30 Day Evaluation Program
- Repair Service Available on Selected Product