



## Audio Monitoring Technology Product Catalog



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



## The US Federal Law As It Pertains To Audio Monitoring

### **United States Code, Title 18, Section 2510(2) regarding rights of privacy:**

"Oral communication means any "oral communication" uttered by a person exhibiting an expectation that such communication is not subject to interception under circumstance justifying such expectation."

Section 2511 (2)(d) goes further:

(1): "It shall not be unlawful [under this chapter] for a person...to intercept...oral...communication where such person is a party to the communication or where one of the parties to the communication has given prior consent to such interception..."

A person does not have an expectation of privacy if there are public signs posted giving clear indication that the communication is being monitored. Implied consent is valued as is explicit permission.

Posting of signage, a disclaimer, on the public entrances and exits, notifying all that "Audio Monitoring on These Premises" in effect, assists entities to comply with United States Code regarding notice and rights of privacy. Louroe provides signage that we recommend be clearly posted. There are other, meaningful ways to provide awareness, such as employee handbooks, patient consent forms, and school registration, to name a few.

Each State in the U.S. has adopted statutes that are based on the Federal law. It is important for qualified distributors/resellers of audio monitoring technology that they not rely solely on the above information, and to verify the above with knowledgeable legal counsel in the location where the technology is planned to be deployed.

**Federal Law References: US Code, Title 18. Sec. 2510.  
FOR UNITED STATES ONLY**

# State Statutes Addressing Audio Monitoring

State	Statute	Party Consent
Alabama	AL Code §13A-11-30	1
Alaska	§42.20.310	1
Arizona	AZ Stat §13-3005	1
Arkansas	§5-60-120	1
California	CA Penal Code §631	ALL
Colorado	CO Stat §18-9-303	1
Connecticut	CT Stat §52-570d	ALL
Delaware	DE Code Title 11, §2402(c)(4)	1
DC	DC Code §52-541 & §23-542	1
Florida	FL Stat Ch 934.03	ALL
Georgia	GA Code §16-11-62	1
Hawaii	HI Stat §803-42, 711-1111	1
Idaho	ID Code §18-6702	1
Illinois	720 ILCS 5/14-2	ALL
Indiana	IN Code §35-33.5-1-5	1
Iowa	IA Code §727.8	1
Kansas	KS Stat §21-6101	1
Kentucky	KY Stat §526.010	1
Louisiana	LA Stat §15:1303	1
Maine	ME Title 15, §709	1
Maryland	MD Code §10-402	ALL
Massachusetts	MA Ch 272, §99	ALL
Michigan	MI Laws §750.539c	ALL
Minnesota	MN Stat §626A.02	1
Mississippi	MS Code §41-29-501 to 537	1
Missouri	MO Stat §542.402	1

State	Statute	Party Consent
Montana	MT Code §45-8-213	ALL
Nebraska	NE Stat §86-290	1
Nevada	NV Stat §200.620	1/Court Order
New Hampshire	NH Stat §570-A:2	ALL
New Jersey	NJ Stat §2A:156A-3&4	1
New Mexico	NM §30-12-1	1
New York	NY Penal Law §250.00, 250.05	1
North Carolina	NC Stat §15A-287; §14-155	1
North Dakota	ND Code §12.1-15-02	1
Ohio	OH Code §2933.52	1
Oklahoma	13 OK St. §176.2 -4	1
Oregon	OR Stat §165.540, 165.543 & §133.005	1
Pennsylvania	18 PA Stat §5703 to 5704	ALL
Rhode Island	RI Gen Laws §11-35-21, §12-5.1	1
South Carolina	SC Code §17-30-20	1
South Dakota	SD Codified Laws §23A-35A-20	1
Tennessee	TN Code §39-13-605	1
Texas	TX Penal Code §16.02	1
Utah	UT Code §77-23a-4	1
Vermont	No VT Statutes Address Monitoring	
Virginia	VA Code §19.2-62	1
Washington	WA Code §9.73.030	ALL
West Virginia	WV Code §62-1D-3	1
Wisconsin	WI Stat §968.31	1
Wyoming	WY Stat §7-3-701	1

(1): From United States Code, Title 18, **it shall not be unlawful...**for a person...to intercept a wire, oral, or electronic communication **where** such person is a party to the communication or **where** one of the parties to the communication has given prior consent to such interception. Section 2510(2) regarding rights of privacy.

(All): all party consent states require the consent of each individual involved in the communication.

Statutes current as of 2018

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## Notes

# Education



## Improve School Security in Real-Time

With growing concern for safety in our schools across the nation, school systems are taking a renewed examination of their security equipment and protocols. Traditional video surveillance systems do not provide enough situational awareness and early detection. Many schools are now leveraging the combined technologies of audio and video surveillance to keep their students, staff and campuses safe.

Integrating microphones, intercoms and two-way speakerphones with cameras gives staff access to more details about a suspect or scene. Voices, names, languages spoken and directions are just a few examples of what information can be aggregated. Beyond detection, audio monitoring creates opportunities for de-escalation and prevention. Having the ability to communicate in real-time can be a powerful warning that dissuades a trespasser from vandalizing the property or committing other offenses. Adding audio equipment to your system is a cost-effective investment that improves the security system while requiring minimal installation.

### Suggested placements

- > Additional Evidence
- > Monitoring Efficiency
- > Crime Deterrence
- > Dispute Resolution
- > Main Entrances
- > Classrooms & Hallways
- > Cafeterias & Common Areas
- > School Buses



Digifact® A



Aggression & Gunshot Detectors



TLO speaker with microphone



ASK-4® kit #108







## Retail/C-Store



### Increase Retail Profitability and Improve Operations

Retail is vital part of the U.S. economy, accounting for one in four jobs according to the National Retail Federation (NRF). However, shrinkage continues to plague store managers and averages approximately 1.4 percent of retail sales. Today, it is essential that retailers invest in audio security and loss prevention technologies to protect their assets and deter employee theft, shoplifting and organized retail crime.

When applied to retail locations and convenience stores, Louroe Electronics' microphones add to both security and service. In the event of a crime or customer dispute, audio monitoring adds context and evidence that video alone doesn't provide. Audio is also used as a training tool to coach employees on proper protocol and customer service.

#### Suggested placements

- > Checkout Counters
- > Store Aisle & Shelves
- > Loss Prevention Office & Cash Room
- > Parking Lots



ASK-3® kit  
#300



Verifact® A



AOP-540



TLO



# Commercial



## Increase Safety of Employees, Visitors and Property

Commercial buildings house our most important businesses. Whether it's a downtown skyscraper, warehouse or new office complex, these commercial spaces all need secure parking lots, entrances, and common areas in order to provide a safe environment for their employees, guests and property.

Adding a microphone or intercom to an existing surveillance system helps screen visitors, allows for better management of congested areas and can streamline business operations. Additionally, clear two-way audio solutions provide real-time communication over large complexes or remote locations.



### Suggested placements

- > Entrances & Exits
- > Elevators & Lobbies
- > Parking Structures
- > Reception & Common Areas



A-ML



ASK-4® kit  
#304



Gunshot Detector



AOP-530





# Transportation



## Maximize Safety and Security for All Passengers

The world of transportation moves faster than ever before and affects manufacturing output, trade, business commuting, and leisure travel activity. When looking to improve security in transportation, we need to extend it beyond video and consider how audio can increase safety for passengers and employees.

Louroe Electronics' audio monitoring solutions are ideal for the air, sea and rail sectors of the transportation industry. Airports and seaports benefit from intercoms that provide access control and additional checkpoints for visitors in restricted areas and main entrances. Microphones offer live monitoring on buses and trains and allow the driver to monitor what is happening behind him or her. Audio ensures accountability for both the driver and passengers, dissuading harassment and vandalism. By deploying two-way audio along with video, transportation staff can also interact remotely with employees or commuters in real-time, alerting them to auditory 'triggers' that serve as precursors to high-risk situations.



### Suggested placements

- > Check-In Counters, Waiting Areas
- > Bus, Train & Airplane Passenger Cabins
- > Entrances to Restrictive Areas
- > Cargo & Loading Areas



Verifact® K



AOP-SP-CF



Verifact® E



Gunshot Detector

# Law Enforcement and Corrections



## Increase Safety and Improve Efficiency in Correctional Facilities

Police stations, prisons, government buildings and other law enforcement facilities all benefit from security systems that integrate audio monitoring. For law enforcement, audio is an effective tool that helps monitor suspects, deter crime and provide additional evidence in the event of an illegal or threatening activity. Across the country, administrators are seeking sophisticated technology to improve work efficiency while maintaining a high level of security for inmates, law enforcement officials and visitors alike.

There are many uses for audio in law enforcement. Used often in interview rooms, court rooms or detention centers, Louroe Electronics' microphones are sensitive enough to capture a suspect's comments even when whispered. In common rooms, vandal resistant microphones allow staff to monitor conduct and can provide verbal evidence to resolve a dispute or substantiate an incident report. Two-way audio solutions give officers the ability to speak to inmates from a remote location.

### Suggested placements

- > Interview Rooms
- > Psychiatric Department
- > Court Rooms
- > Prison Cells & Halls
- > Common Areas



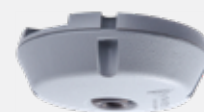
Aggression  
Detector



ASK-4® kit  
#631



Verifact® DV



Verifact® A USB





# Healthcare



## Upgrade Security for Patients and Providers

As healthcare facilities require a heightened level of physical security, administrators are looking for new technology that not only protects their campuses, but is also faster and more effective than systems in the past.

Louroe Electronics' audio solutions have been installed in hospitals, long-term care facilities and other healthcare facilities around the globe to increase both security and service of patients and healthcare staff. Audio solutions helps staff speak quickly and easily with patients. Frequently used at nursing and technician stations, two-way audio systems allow personnel to communicate with patients at the touch of a button and patients can respond hands free.

### Suggested placements

- > Patient Rooms & Nurse Stations
- > Reception & Emergency Room
- > Hallways & Waiting Areas
- > Therapy & Psychiatric Departments
- > Entrances, Exits & Restricted Areas



ASK-4® kit  
#501



Aggression  
Detector



AOP-SP-CF



Digifact® A



# Banking



## Improve Banking Operations and Security

Banks and financial institutions oversee thousands of transactions each day as people continually withdraw and deposit of money. For this reason, securing financial institutions, deterring threats and preventing robberies are top priorities.

Louroe Electronics' microphones increase the overall situational awareness of what's happening for bank personnel. Audio is also used as a training tool to ensure that employees provide good customer service. In the event of a robbery, the microphones capture additional evidence (such as voices) that video alone does not provide.. Additionally, two-way audio allows staff from a remote location to issue instructions or warnings.



### Suggested placements

- > Teller Windows & Branch Offices
- > ATM
- > Deposit Rooms & Vaults
- > Entrances & Exits



Verifact® A



Verifact® L-DT



Glass Break & Aggression Detectors



ASK-4® kit #300



# Public Safety/Safe Cities



## Create Safer Cities with Complete Situational Awareness

A violent crime occurs once every 26 seconds in the United States per the FBI's Uniform Crime Reporting "Crime Clock". As such, reducing crime in metropolitan and suburban areas is arguably the highest priority for municipalities and law enforcement. When it comes to protecting cities and enhancing public safety, audio solutions are essential. This is particularly true when it comes to delivering critical information to first responders. Sound is often one of the earliest indicators to a first responder that something is wrong.

Adding audio to a surveillance solution is the first step in deploying smart city security. One and two-way audio solutions allow for proactive and real-time monitoring. Additionally, sound detectors help security and law enforcement personnel identify acoustic events commonly associated with crimes, alerting first responders prior to a precarious situation reaching its full potential.



### Suggested placements

- > City Surveillance
- > City Center & Streets
- > Government & Municipality Buildings
- > Parks & Tourist Areas



AOP-540



Gunshot Detector



TLO



Verifact® E



# Louroe By The Numbers

**>70%**

IP Cameras Have  
Audio Capability\*

**\$900M**

Global Security  
Market For  
Audio\*

**12%**

Annual Growth  
For The Security  
Industry\*

**1979**

Louroe  
Established

**60+**

Countries Use  
Louroe Products

**+900K**

Verifact®  
Microphones  
In Use

"When we discuss security, we need to progressively think and speak about using sound, giving audio its due."

Richard Brent—CEO, Louroe Electronics

## Who We Are

Louroe Electronics® is the world leader in audio monitoring technology. Since 1979, Louroe has provided first-class audio monitoring and safety solutions that assist in protecting people and property.

## What We Do

Louroe's signature product lines are the Verifact® microphones and ASK-4® kits, a series of pre-amplified microphones, complementing base stations, and communication accessories that provide audio output to interface with other security devices. The microphones are easy to install and are compatible with most recorders, cameras and IP video systems.

## Value Of Audio

Sound and voice can be used for numerous purposes such as loss prevention, crime deterrence, additional evidence, alarm verification, employee training, classroom monitoring, and visitor management.

## Our Vision

To be the company most trusted to provide the best value in audio monitoring and surveillance solutions.

## Our Mission

To raise awareness of the importance of audio in the security industry, deliver the finest audio security solutions and contribute to making the world a safer place.

## Our Values

Integrity • Teamwork • Excellence •  
Accountability • Customer Service

\*IHS, Trends for 2014 - Video Surveillance Trends, 2013

## Our Strengths

### 39 Years Of Audio Expertise

- > Omni-directional microphones
- > Speaker microphones
- > Audio Monitoring systems
- > Complementary audio accessories

### Product Durability

- > Quality assurance
- > All products are made in the USA
- > Products exported to more than 60 countries
- > More than 900,000 Verifact® Microphones in use

### High Customer Satisfaction

- > Premier product design and engineering team
- > Quality tested at every step of the production process
- > 3 day lead time for most products

## Some of Our Achievements



## Our Commitment

Louroe is strategically committed to providing our consumers with innovative products and the necessary expertise as it relates to audio monitoring technology.

- > Best value as defined by customer satisfaction with product performance, support and durability
- > Technical expertise to support project application... from simple to complex
- > Understanding the range of applications and how best to deploy the product to maximize its effectiveness
- > Warranty performance of the product—repair and/or replacement with up-to-date components

## Our Associations And Technology Partners



## Legal Compliance

When it comes to audio monitoring applications, Louroe is and will remain committed to following the law in Federal, State and municipal jurisdictions. We design our product for overt applications, and inform all who purchase and receive our products what steps are to be taken when applying the technology so as to comply with the national laws as they relate to audio monitoring.

# Microphones

## Microphones

Louroe's microphones are the backbone of our audio monitoring technology. Low impedance elements are selected for their omni-directional capability and sensitivity, with circuitry designed to pre-amplify, taking a signal from -45dB to 0dB for line-level output.

Our microphones capture an exceptional quality of sound, a wide frequency response and have an exceptional durability thanks to their robust design.

Four types of microphones are available: Verifact<sup>®</sup> line level, mic level and digital.

### Verifact<sup>®</sup> Line Level Microphones

The Verifact<sup>®</sup> line level microphones have a built-in preamplifier for producing line level audio output. Each Verifact<sup>®</sup> microphone includes a gain adjustment switch. Louroe also offers automatic gain control microphones. Many applications have been tested and evaluate well with a line level technical selection.

### Mic Level Microphones

The mic level microphones have no built-in preamplifier. Mic level are available for cameras that specify and demonstrate compatibility with a mic level audio input.

























### Verifact<sup>®</sup> USB Microphones

The Verifact<sup>®</sup> USB digital microphone has a built-in preamplifier and USB codec. The microphone is self-powered from the USB hub therefore not requiring any external power source. The microphone includes a gain adjustment switch.

### Digifact<sup>®</sup> IP Microphones

The Digifact<sup>®</sup> microphones are IP based microphones that feature a quad-core processor that streams audio over multiple industry standards including Real Time Streaming Protocol (RTSP) and can be easily connected to leading VMS platforms. Digifact microphones have audio analytics capabilities including gunshot, aggression, glass break and car alarm as well as feature decibel threshold alarming.

# Microphones

	Ceiling	High Ceiling	Special Application	Wall	Outdoor	Vandal Resistant	Table Top/Ceiling
	Omni-directional						Directional
Line Level	Verifact® A	Verifact® B	Verifact® C	Verifact® D	Verifact® E	Verifact® DV	Verifact® K
							
		Verifact® B-6					Verifact® L-DT
							
	Automatic Gain Control						
	Verifact® AGC	Verifact® BGC	Verifact® CGC	Verifact® DGC	Verifact® EGC	Verifact® DVGC	
							
Mic Level Compatible With IP Cameras	A-ML	B-ML	C-ML	D-ML	E-ML	DV-ML	
							
Digital	Verifact® A USB			Verifact® D USB			
							
IP	Digifact® A						
							



NEWLY  
IMPROVED

# Verifact® A

The Verifact® A microphone is the backbone of Louroe's audio monitoring technology. This is an **omni-directional**, low output impedance, electret condenser microphone with built-in preamplifier for producing line level audio output. The newly improved smart tube on the Verifact® A captures an exceptional quality of sound, a **wide frequency response** and has **exceptional durability** thanks to its robust design.



Retail



Education



Commercial



Transportation



Law Enforcement



Banking



C-store



Hospitality

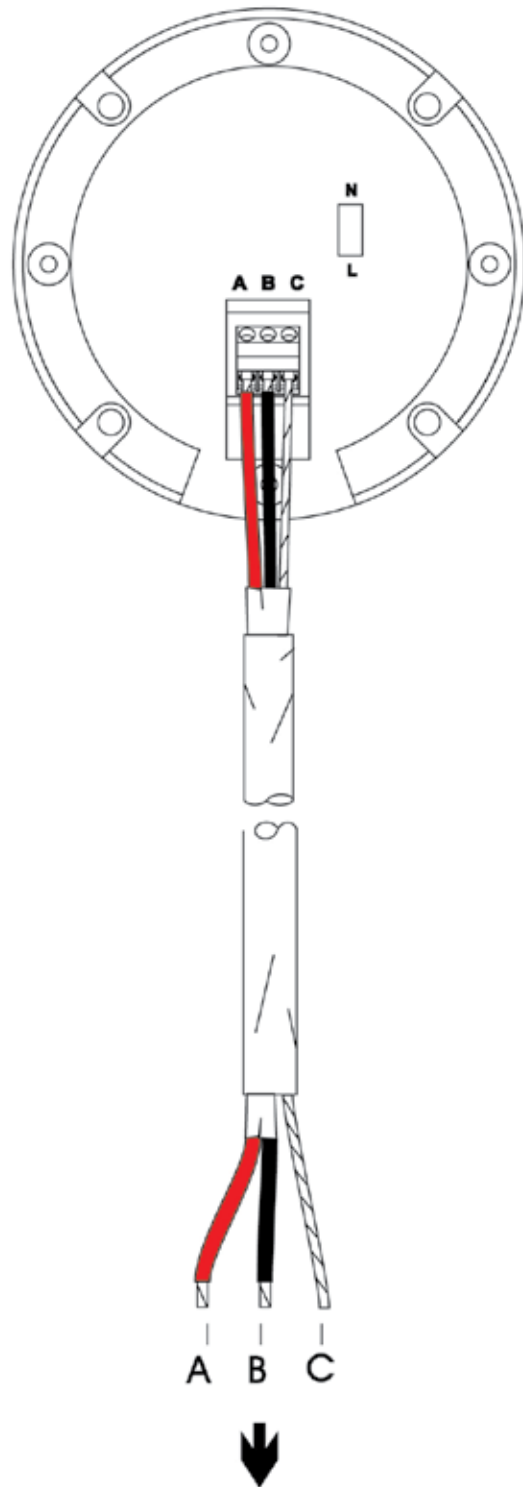


Healthcare

Omni-directional



## Verifact® A Microphone



### Market

- > The Verifact® A is designed for a wide array of applications

### Features

- > Improved Smart Tube technology
- > High impact anti-static ABS
- > Omni-directional, within 30' diameter circle
- > Easily mounted to wall or ceiling surface
- > May be located up to 1000' from the Louroe base station
- > Sensitivity switch: normal/low

### Included In Most Kits



ASK-4® kit #101  
p30



ASK-4® kit #300  
p34

### Compatible With

- > All Louroe base stations, interfaces and most cameras and recorders that accept a line level audio input
- > For IP cameras with Mic level input refer to the A-ML p27



**To Louroe Base Stations and Audio Interfaces  
or Line Level Audio Receivers**



# Verifact® A USB

The Verifact® A USB is a ceiling mount microphone with a **USB connection**. The microphone is **self-powered** from the USB port and therefore does not require any external power source. The microphone has a built-in preamplifier and gain adjustment switch. The newly improved **Smart Tube** technology captures an exceptional quality of sound, a wider frequency response and has exceptional durability.



Education



Commercial



Law Enforcement



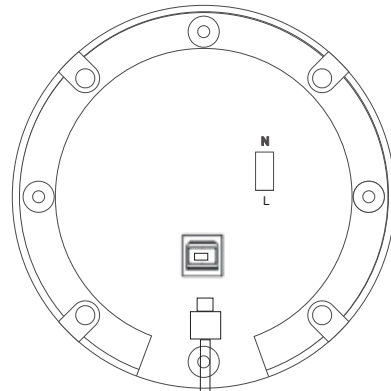
Banking



Healthcare

Omni-directional

## Verifact® A USB Microphone



### Market

- > The Verifact® A USB is designed for easy plug-n-play in almost any application

### Features

- > Improved Smart Tube technology
- > USB Type 2 connection
- > Omni-directional, within 30' diameter circle
- > May be connected and recognized by most VMS systems



USB connects to computer, NVR, or other audio interfaces.

### Compatible With

- > Most PCs and NVRs that accept USB audio





# Verifact® L-DT

The Verifact® L-DT microphone is designed as a **bi-directional microphone** where sound pick up is more in the front or back of the housing and less on the sides. The nonslip bottom adheres to desktop or flat horizontal surfaces. This has two opposite facing, omni-directional electret condenser microphones, with built in preamp. It offers an **exceptional durability** thanks to its robust design and is **easy to install**.



Law Enforcement



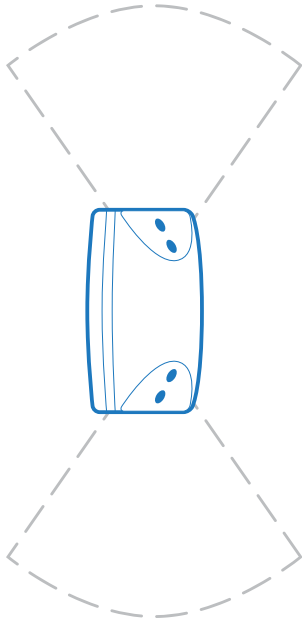
Banking



Hospitality

Bi-directional

## Verifact® L-DT Microphone



### Market

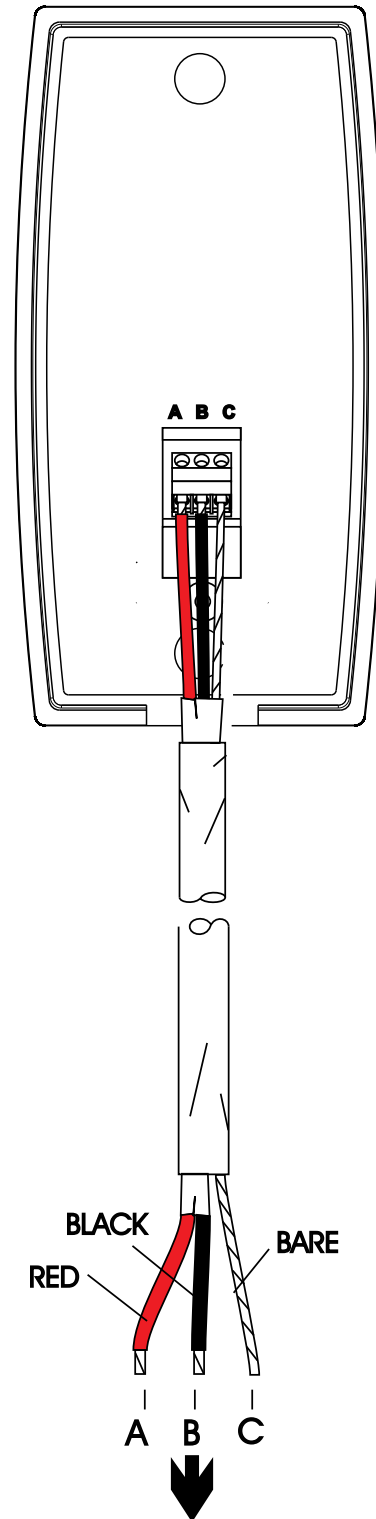
- > The Verifact® L-DT is especially designed for teller windows, law enforcement, interview rooms or gaming tables

### Features

- > Two opposing built-in microphones
- > Pre-amplified for line level output
- > Pickup pattern is within 10' of the microphone element
- > May be located up to 1000' from the Louroe base station
- > High impact anti-static ABS
- > Non-slip bottom for firm adherence to desktop or any flat horizontal surface

### Compatible With

- > All Louroe base stations and interfaces



**To Louroe Base Stations and Audio Interfaces  
or Line Level Audio Receivers**





# Verifact® D-V

The Verifact® D-V is designed for vandal prone areas. The **vandal resistant** faceplate has a louver for microphone protection. In addition, the microphone element is mounted in a rigid recessed housing to prevent damage from foreign objects. The unit fits into a single gang electrical backbox (not included) for ease of installation for ceiling or wall. Flush mounting further enhances vandal resistance. The Verifact® D-V is **omni-directional** and produces line level output.



Education



Commercial



Law Enforcement

Omni-directional

Vandal Resistant

## Markets

The vandal-resistant microphone is designed for correctional, educational and commercial facilities or any area where the potential for vandalism is a concern. It is typically installed in the intake room, interview room and common areas.

## Features

- > High sensitivity to low sound pressure
- > Microphone can pick up normal sounds within a 15' radius
- > May be located up to 1000' from base station
- > Fits into single gang electrical box (not included)
- > Flush or surface mount to wall or ceiling
- > Sensitivity switch: normal/low
- > Tamper resistant stainless steel faceplate with tamperproof screws

## Included In



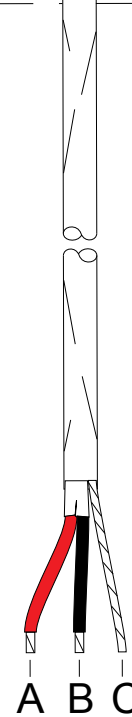
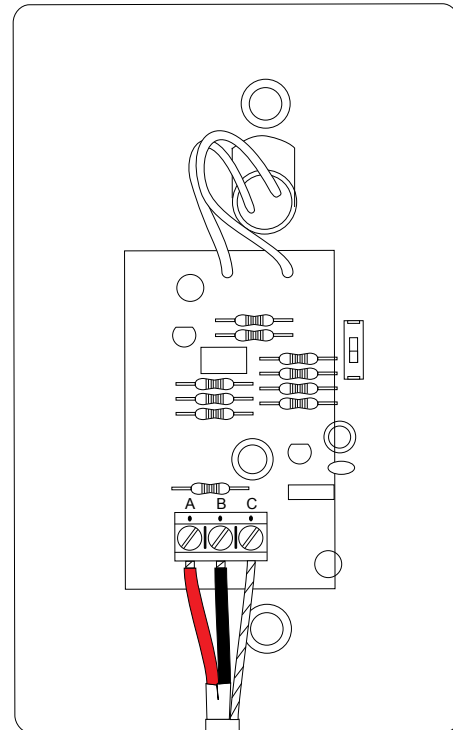
ASK-4® kit #101D-V p32

## Compatible With

- > All Louroe base stations and interfaces and most cameras and recorders that accept a line level audio input
- > For IP cameras with Mic level input refer to the DV-ML p27



## Verifact® D-V Microphone



**To Louroe Base Stations and Audio Interfaces  
or Line Level Audio Receivers**

# Digital & Line Level

## Microphones



	Digital			Line Level Non AGC		
Model	VERIFACT® A USB	VERIFACT® D USB	DIGIFACT® A	VERIFACT® A	VERIFACT® B	VERIFACT® C
LE Product Number	LE-052	LE-053	LE-870	LE-070	LE-071 (3' cable) LE-039 (6' cable)	LE-072
Microphone Mounting	Ceiling	Wall	Ceiling	Ceiling		Special application
Indoor/Outdoor	Indoor	Indoor	Indoor	Indoor		

### Specifications

Pick Up Pattern	Omni-directional, within 30' diameter circle		
Type	Electret condenser		
Sensitivity	-45 dBV/Pa 1 Pa = 94 dB SPL		
Frequency Response	50 Hz to 15 kHz		
Output	Digital		
Current Drain	100 mV		
Supply Voltage	5 Vdc		PoE IEEE802.3af
Housing	High impact anti static ABS	Stainless steel faceplate Single gang-electrical box (not included)	High impact anti static ABS
Dimensions	4" dia x 1 ½" H	2 ¾" W x 4 ½" H	4.7" dia x 2" H
Weight	3.5 oz	2.5 oz	9 oz
Compatibility	CCTV, DVR		Network
UL Listed	x		

Pick Up Pattern	Omni-directional, within 30' diameter circle		
Type	Electret condenser		
Sensitivity	-45 dBV/Pa 1 Pa = 94 dB SPL		
Frequency Response	50 Hz to 15 kHz		
Output	Line level (0 dBV, 600 Ω @ 1 kHz)		
Current Drain	10 mA		
Supply Voltage	12 Vdc		
Housing	High impact anti static ABS		
Dimensions	4" dia x 1 ½" H	2 ¾" L x 2 ½" W x 1 ½" H	
Weight	3.5 oz	4 oz / 4.5 oz	1.5 oz
Compatibility	CCTV, DVR		
UL Listed	x		



	Line Level Non AGC				
Model	VERIFACT® D	VERIFACT® DV	VERIFACT® E	VERIFACT® K	VERIFACT® L-DT
LE Product Number	LE-078	LE-069	LE-075	LE-077	LE-079
Microphone Mounting	Wall	Wall-vandal resistant	Wall		
Indoor/Outdoor	Indoor		Outdoor-weather resistant	Indoor	

### Specifications

Pick Up Pattern	Omni-directional, within 30' diameter circle			Directional within 12' from the microphone location	Bi-directional within 10' from the microphone location
Type	Electret condenser			Dynamic	2 Electret condenser
Sensitivity	-45 dBV/Pa    1 Pa = 94 dB SPL			-58 dBV/Pa	-45 dBV/Pa
Frequency Response	50 Hz to 15 kHz			100 Hz to 15 kHz	300 Hz to 8 kHz
Output	Line level (0 dBV, 600 Ω @ 1 kHz)				Line level (0 dBV, 1 kΩ @ 1 kHz)
Current Drain	10 mA				
Supply Voltage	12 Vdc				
Housing	Stainless steel faceplate		Single gang weather resistant bell box	High impact anti-static ABS	
	Single gang electrical box (not included)				
Dimensions	2 ¾" W x 4 ½" H		2 ¾" W x 4 ½" H x 2 ⅝" D	4 ⅝" L x 2" W x 1 ¾" H	4 ⅝" L x 2 ¼" W x 1 ½" H
Weight	2.5 oz	4 oz	11.5 oz	2.5 oz	
Compatibility	CCTV, DVR				
UL Listed	x				

# Line Level AGC

## Microphones



Line Level AGC						
Model	VERIFACT® AGC	VERIFACT® BGC	VERIFACT® CGC	VERIFACT® DGC	VERIFACT® DVGC	VERIFACT® EGC
LE Product Number	LE-510	LE-571	LE-572	LE-578	LE-569	LE-575
Microphone Mounting	Ceiling		Special application	Wall	Wall-vandal resistant	Wall
Indoor/Outdoor	Indoor					Outdoor-weather resistant

### Specifications

Pick Up Pattern	Omni-directional, within 50' diameter circle						
Type	Electret Condenser						
Sensitivity	-45 dBV/Pa    1 Pa = 94 dB SPL						
Frequency Response	300 Hz to 8 kHz						
Output	Line level (-70 dBV to + 10 dBV, 1 kΩ @ 1 kHz)						
Current Drain	10 mA						
Supply Voltage	12 Vdc						
Housing	High impact anti static ABS			Stainless steel faceplate		Single gang weather resistant bell box	
				Single gang electrical box (not included)			
Dimensions	4" dia x 1 ½" H		2 ⅝" L x 2 ⅝" W x 1 ⅛" H		2 ¾" W x 4 ½" H		2 ¾" W x 4 ½" H x 2 ⅝" D
Weight	3.5 oz	4 oz	1.5 oz		2.5 oz	4 oz	11.5 oz
Compatibility	CCTV, DVR						
UL Listed	x						

# Mic Level



Mic Level						
Model	A-ML	B-ML	C-ML	D-ML	DV-ML	E-ML
LE Product Number	LE-770	LE-771	LE-772	LE-778	LE-769	LE-775
Microphone Mounting	Ceiling		Special application	Wall	Wall-vandal resistant	Wall
Indoor/Outdoor	Indoor					Outdoor-weather resistant

### Specifications

Pick Up Pattern	Omni-directional, within 30' diameter circle					
Type	Electret Condenser					
Sensitivity	-45 dBV/Pa    1 Pa = 94 dB SPL					
Frequency Response	300 Hz to 8 kHz					
Output	Mic level					
Output Impedance	1 kΩ					
Current Drain	0.8 mA					
Supply Voltage	1.8 - 4.5 Vdc					
Housing	High impact anti static ABS		No housing	Stainless steel faceplate		Single gang weather resistant bell box
				Single gang electrical box (not included)		
Dimensions	4" dia x 1 ½" H		0.53" dia x 1.3" L	2 ¾" W x 4 ½" H		2 ¾" W x 4 ½" H x 2 ⅝" D
Weight	7.5 oz	8 oz	4.5 oz	6.5 oz	8 oz	15.5 oz
Compatibility	IP camera with Mic level audio input					
UL Listed	-					

# Audio Monitoring Systems

## ASK-4® kits—Audio Monitoring Kits

Louroe Electronics offers complete solutions that are ready and easy to use. Our wish is to facilitate your ease of installation and integration of our audio products.

### 100 Series—One-Way Listen Base Stations With Verifact® Microphones

The 100 series offers the ability to listen live while simultaneously sending audio to a recorder. The kits offer a wide selection of microphones and multi zone systems.

### 300 Series—Interface Adapters

The 300 series provides the ease of connection directly to a DVR, camera, encoder or recorder. The 300 series offers a selection of Verifact® microphones and multi zone systems.

### 400 Series—Expanded Zone Coverage

The 400 series incorporates Louroe's microphone mixers to increase the pickup area for one channel of audio. Two microphones connect to the mixer with a single output, acting as one microphone, expanding the area of the monitored zone.

### 500 Series—Bi-directional (Talk/Listen) Monitoring

The 500 series is designed for two-way communication. These ASK-4® kit systems come in single zone and multi zone options with listen/talkback base stations and remote hands-free talk/listen stations.

### 600 Series—Audio Monitoring With Mute Switch

The 600 series is designed for applications where muting is critical. The system can provide for a private conversation between parties without listening or recording. This series includes an illuminated wall mountable mute switch.

100 Series		
Listen Live + Playback Audio	ASK-4® kit #101	ASK-4® kit #122
		
	Rack Mounted ASK-4® kit #101-RM	
300 Series—Interface Adapters		
Connection To Camera Or DVR	ASK-4® kit #300	ASK-4® kit #302
		
Audio Over PoE	ASK-4® kit #350	ASK-4® kit #370
		
400 Series		
Expanded Zone Coverage	Live Monitoring ASK-4® kit #401	Recording ASK-4® kit #431
		
500 Series		
Two-Way Audio	Flush ASK-4® kit #501-TLI-CF	Surface ASK-4® kit #501-TLI-CS
		
600 Series		
Audio Monitoring With Mute Switch	Live Monitoring ASK-4® kit #601	Interface To Recorder Or Cameras (DVR) ASK-4® kit #631
		



# Audio Monitoring Systems

ceiling	High Ceiling		Wall	Outdoor	Vandal Resistant	Special Application
ASK-4® kit #104	ASK-4® kit #108	ASK-4® kit #101B	ASK-4® kit #102	ASK-4® kit #101E	ASK-4® kit #101-D-V	ASK-4® kit #101C
			<div> Rack Mounted ASK-4® kit #102-RM </div>			

ASK-4® kit #304



ASK-4® kit #501





# ASK-4<sup>®</sup> kit #101

This single zone audio monitoring kit is compatible with most recorders. The kit is designed for audio monitoring and interfacing with a DVR and is **ideal for Live Monitoring Systems**. The APR-1 desktop base unit has a 3" speaker for monitoring live audio and playback. It contains a mute switch to mute both live and playback audio. The Verifact<sup>®</sup> A microphone is designed for ceiling mount applications and can pick up sounds within a 30' diameter circle.



Retail



Education



Commercial



Transportation



Law Enforcement



Banking



C-store



Hospitality



Healthcare

Compatible with DVRs

## Markets

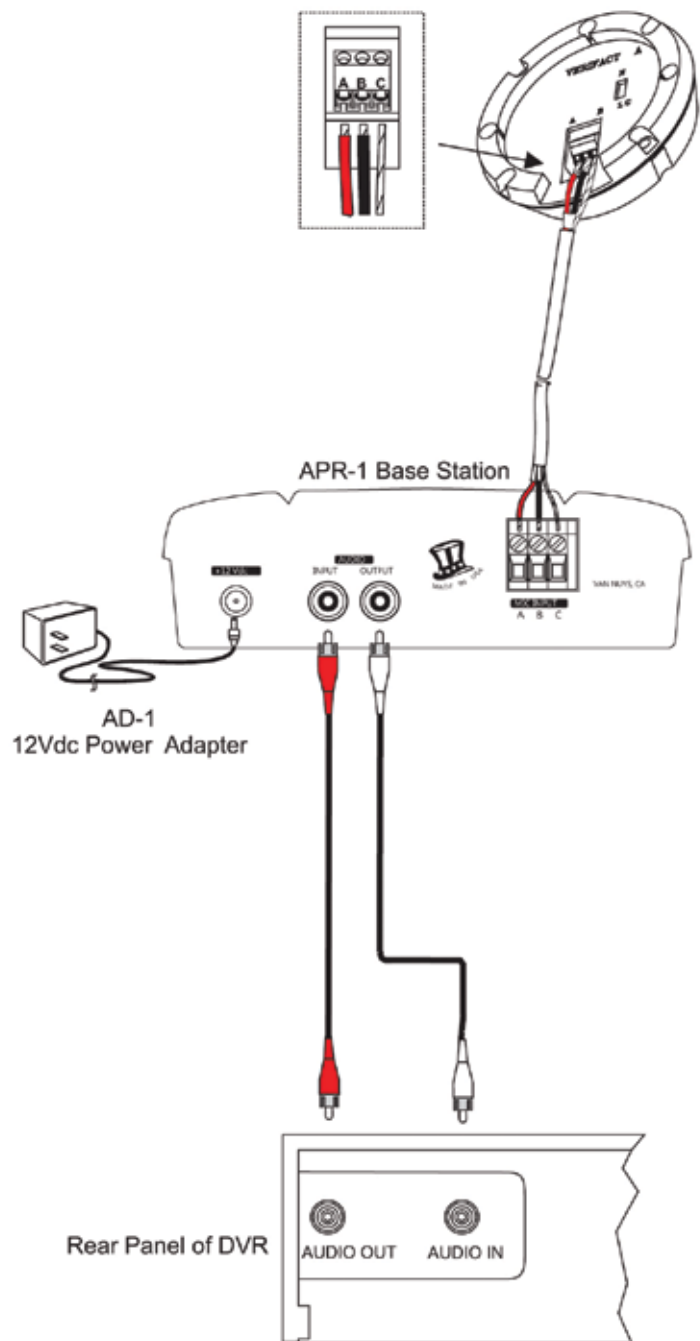
The ASK-4® #101 kit is usually placed at checkout counters in interview rooms, in court rooms or at cashier cages.

## Features

- > Line level audio output (RCA) to DVR
- > Omni-directional, within 30' diameter circle
- > Base station with 3" speaker for monitoring live audio and playback from a DVR
- > 3.5 mm headphone jack for private listening
- > The microphone can be placed up to 1000' away from the base station and is connected with 22/2 shielded cable

## Kit Includes

- > Verifact® A Microphone
- > APR-1 Desktop Base Station
- > AD-1 12 Vdc power supply
- > Dual RCA cables for connection to DVR



# 100 Series - One Way Listen

## Audio Monitoring Systems



Listen Live + Playback Audio					
Model	ASK-4® kit #101	ASK-4® kit #101-RM	ASK-4® kit #101B	ASK-4® kit #101C	ASK-4® kit #101D-V
LE Product Number	LE-015	LE-018	LE-361	LE-362	LE-366
Microphone Mounting	Ceiling		High ceiling	Special application	Wall-vandal resistant
Indoor/Outdoor	Indoor				
Number Of Microphone	1				
Rack Mounted	-	x		-	
Includes					
Microphone	Verifact® A		Verifact® B	Verifact® C	Verifact® D-V
Base Station	APR-1				
Cable	Dual RCA cable				
Power Supply	AD-1 12 Vdc, 500 mA				

### Specifications

<b>Microphone</b>			
Pick Up Pattern	Omni-directional, within 30' diameter circle		
Type	Electret condenser		
Sensitivity	-45 dBV/Pa 1 Pa = 94 dB SPL		
Frequency Response	50 Hz to 15 kHz		
Output	Line level (0 dBV, 600 Ω @ 1 kHz)		
Current Drain	10 mA		
Supply Voltage	12 Vdc		
Microphone Housing	High impact anti static ABS		Stainless steel faceplate Single gang electrical box (not included)
Dimensions	4" dia x 1 ½" H	2 ⅝" L x 2 ⅝" W x 1 ⅛" H	2 ¾" W x 4 ½" H
Weight	3.5 oz	1.5 oz	4 oz
<b>Base Station</b>			
Monitor Output Power	1W @ 8 Ω		
Audio Input Impedance	10K		
Frequency Response	100 Hz to 10 kHz		
Headphone Impedance	8 to 600 Ω		
Universal Power Supply	12 Vdc, 500 mA		
Dimensions	8 ¼" L x 5 ¾" W x 1 ⅝" H	19" L x 3 ½" W x 8 ¼" D	8 ¼" L x 5 ¾" W x 1 ⅝" H
Weight	1 lb 6 oz	2 lbs 6 oz	1 lb 6 oz
Compatibility	CCTV, DVR		
UL Listed	x		



# 100 Series - One Way Listen

## Audio Monitoring Systems



Listen Live + Playback Audio					
ASK-4® kit #101E	ASK-4® kit #102	ASK-4® kit #102-RM	ASK-4® kit #104	ASK-4® kit #108	ASK-4® kit #122
LE-363	LE-016	LE-019	LE-394	LE-395	LE-393
Wall			Ceiling		
Outdoor-weather resistant	Indoor				
1			4	8	2
-		x	-		
Includes					
Verifact® E	Verifact® D		Verifact® A		
APR-1			AP-4	AP-8	AP-2
Dual RCA cable					
AD-1 12 Vdc, 500 mA					

### Specifications

Microphone					
Omni-directional, within 30' diameter circle					
Electret condenser					
-45 dBV/Pa    1 Pa = 94 dB SPL					
50 Hz to 15 kHz					
Line level (0 dBV, 600 Ω @ 1 kHz)					
10 mA					
12 Vdc					
Single gang weather resistant bell box	Stainless steel faceplate Single gang electrical box (not included)		High impact anti static ABS		
2 ¾" W x 4 ½" H x 2 ⅝" H	2 ¾" W x 4 ½" H		4" dia x 1 ½" H		
11.5 oz	2.5 oz		3.5 oz		
Base Station					
1W @ 8 Ω					
10K					
100 Hz to 10 kHz					
8 to 600 Ω					
12 Vdc, 500 mA					
8 ¼" L x 5 ¾" W x 1 ⅞" H	19" L x 3 ½" W x 8 ¼" D		6 ⅝" W x 8 ⅝" L x 2 ⅞" H		
1 lb 6 oz	2 lbs 6 oz		1 lb 7 oz	1 lb 10 oz	1 lb 5 oz
CCTV, DVR					
x					



# ASK-4<sup>®</sup> kit #300

The ASK-4<sup>®</sup> kit #300 is a single zone audio monitoring system designed ideally for **connection to IP cameras or DVRs**. When ceiling mounted, a Verifact<sup>®</sup> A microphone can pick up sounds 15' away or within a 30' diameter circle. The model IF-1 interface adapter connects to the microphone, supplies power to the microphone and drives audio into the input of the recording device.



Retail



Education



Commercial



Transportation



Law Enforcement



Banking



C-store



Hospitality



Healthcare

**IP Cameras or DVRs**

## Verifact® A Microphone

### Markets

The ASK-4® kit #300 is typically used for additional evidence at a register in convenience stores, in classrooms and common areas in schools or in a deposit room in the banking industry. The IF-1 is typically placed in a control room and the microphone in the monitored area, close to an IP camera or DVR.

### Features

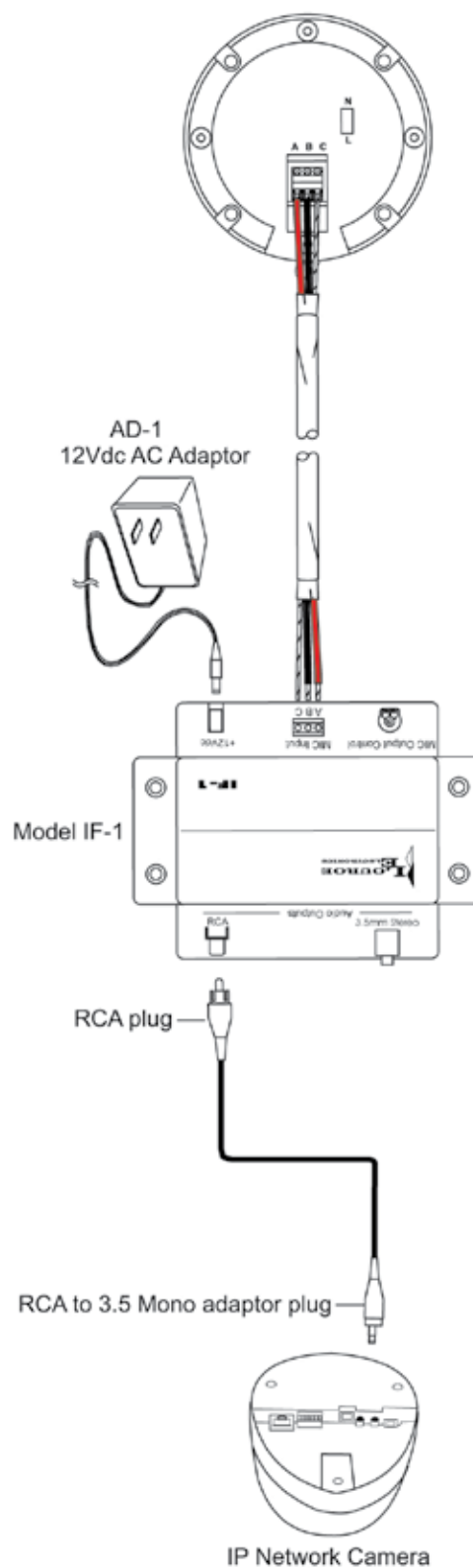
- > Model IF-1 Audio Interface Adapter provides 12 Vdc power to the microphone
- > Volume control to prevent overdriving of signal into a DVR or IP camera
- > RCA and 3.5 mm audio outputs to accommodate most recording devices that accept line level audio input

### Kit Includes

- > Verifact® A Microphone
- > IF-1 interface adapter
- > AD-1 12 Vdc power supply
- > RCA cable, 3.5 mm stereo cables and adapters

### Compatible With

- > IP cameras (with line level input) or DVRs



# 300 Series - Interface Adapters

## Audio Monitoring Systems



	Audio Recording			Audio Over PoE	
Model	ASK-4® kit #300	ASK-4® kit #302	ASK-4® kit #304	ASK-4® kit #350	ASK-4® kit #370
LE Product Number	LE-047	LE-374	LE-292	LE-345	LE-347
Mounting	Ceiling				
Indoor/Outdoor	Indoor				
Number Of Microphone	1	2	4	1	
Includes					
(Speaker) Microphone	Verifact® A				AOP-SP-CF
Interface	IF-1	IF-2	IF-4	IF-PX (see page 50)	
Cable	RCA cable, 3.5 mm stereo cable and adapters	RCA cable and adapters		3.5 mm stereo cables	
Power Supply	AD-1 12 Vdc, 500 mA			PoE (802.3af) or 12 Vdc	

### Specifications

Microphone			
Pick Up Pattern	Omni-directional within 30' diameter circle		
Type	Electret condenser		
Sensitivity	-45 dBV/Pa    1 Pa = 94 dB SPL		
Frequency Response	50 Hz to 15 kHz		
Output	Line level (0 dBV, 600 Ω @ 1 kHz)		
Current Drain	10 mA		200 mA
Supply Voltage	12 Vdc		
Microphone Housing	High impact anti static ABS		Steel
Dimensions	4" dia x 1 ½" H		12 ⅞" dia
Weight	3.5 oz		2 lbs 12 oz
Interface			
Input	Line level		
Audio Input Impedance	17.5k Ω @ 1 kHz		
Audio Output Impedance	600 Ω @ 1 kHz		
Audio Output Gain	Adjustable, up to +10 dB		
Power Requirements	+12 Vdc, 500 mA		PoE (802.3af) or 12 Vdc, 2A Ext
Material	High impact anti static ABS		Black anodized Al 14 Ga
Ethernet Connectors	-		RJ-45 CAT5 input and output jacks
Connectors	Terminal block, RCA jack, 3.5 mm stereo jack, DC jack	Terminal blocks, RCA jacks, DC jack	
Voltage Input	12 Vdc		36V - 57V
Operating Temperature	0 to 70°C		-20°C to +65°C
Dimensions	6 ⅞" L x 4 ⅝" W x 1 ¼" H		11 ½" L x 4 ¾" W x 1 ¼" H
Weight	5.5 oz	7 oz	12.5 oz
Compatibility	DVR, IP camera, encoder		IP camera, encoder
UL Listed	-		x



# 400 Series - Expanded Zone Coverage

## Audio Monitoring Systems



	Expanded Zone Coverage	
Model	ASK-4* kit #401	ASK-4* kit #431
LE Product Number	LE-009	LE-368
Mounting	Ceiling	
Indoor/Outdoor	Indoor	
Number Of Microphone	2	
Includes		
Microphone	Verifact® A	
Base Station/Interface	APR-1	IF-1
Microphone Mixers	RN-2	
Cable	Dual RCA cable	RCA cable and adapters
Power Supply	AD-1 12 Vdc, 500 mA	

### Specifications

Microphone		
Pick Up Pattern	Omni-directional, within 30' diameter circle	
Type	Electret condenser	
Sensitivity	-45 dBV/Pa    1 Pa = 94 dB SPL	
Frequency Response	50 Hz to 15 kHz	
Output	Line level (0 dBV, 600 Ω @ 1 kHz)	
Current Drain	10 mA	
Supply Voltage	12 Vdc	
Microphone Housing	High impact anti static ABS	
Dimensions	4" dia x 1 ½" H	
Weight	3.5 oz	
	Base Station	Interface
Monitor Output Power	1W @ 8 Ω	-
Audio Input Impedance	10 kΩ	20 kΩ
Frequency Response	100 Hz to 10 kHz	50 Hz to 15 kHz
Output Impedance	600 Ω @ 1 kHz	600 Ω @ 1 kHz
Universal Power Supply	12 Vdc, 500 mA	
Dimensions	8 ¼" L x 5 ¾" W x 1 ¾" H	6 ⅞" L x 4 ⅝" W x 1 ¼" H
Weight	1 lb 6 oz	5.5 oz
Audio Mixer		
Input Impedance	20 kΩ	
Output Impedance	1 kΩ @ 1 kHz	
Output Gain	+5 dB	
Input/Output Connections	Terminal blocks	
Dimensions	6 ⅞" L x 4 ⅝" W x 1 ¼" H	
Weight	5.5 oz	
Compatibility	CCTV, DVR	DVR, IP camera, encoder
UL Listed	-	



# ASK-4<sup>®</sup> kit #501

The ASK-4<sup>®</sup> kit #501 is a single zone audio monitoring system for **two-way audio**. The TLM-W remote unit contains a Verifact<sup>®</sup> line level microphone and a 2.5" speaker, all within one housing. AP1-TB desktop base unit produces live audio and playback functions. Talk from the base unit to remote speaker/microphone is engaged by toggling the "hold to talk" switch and speaking into the built-in microphone. A person at the remote speaker/microphone can listen and talk **hands-free**.



Retail



Education



Commercial



Healthcare

Two-Way Audio

## Markets

The ASK-4® kit #501 is typically used in the medical industry in patient rooms, imaging rooms or speech therapy labs. It provides for communication between medical staff and patient rooms. Frequently used at nursing and technician stations, personnel are able to communicate with patients at the touch of a button and patients can respond hands free. The TLM-W is typically placed in the patient room, and the AP-1TB base station at the nurse station.

## Features

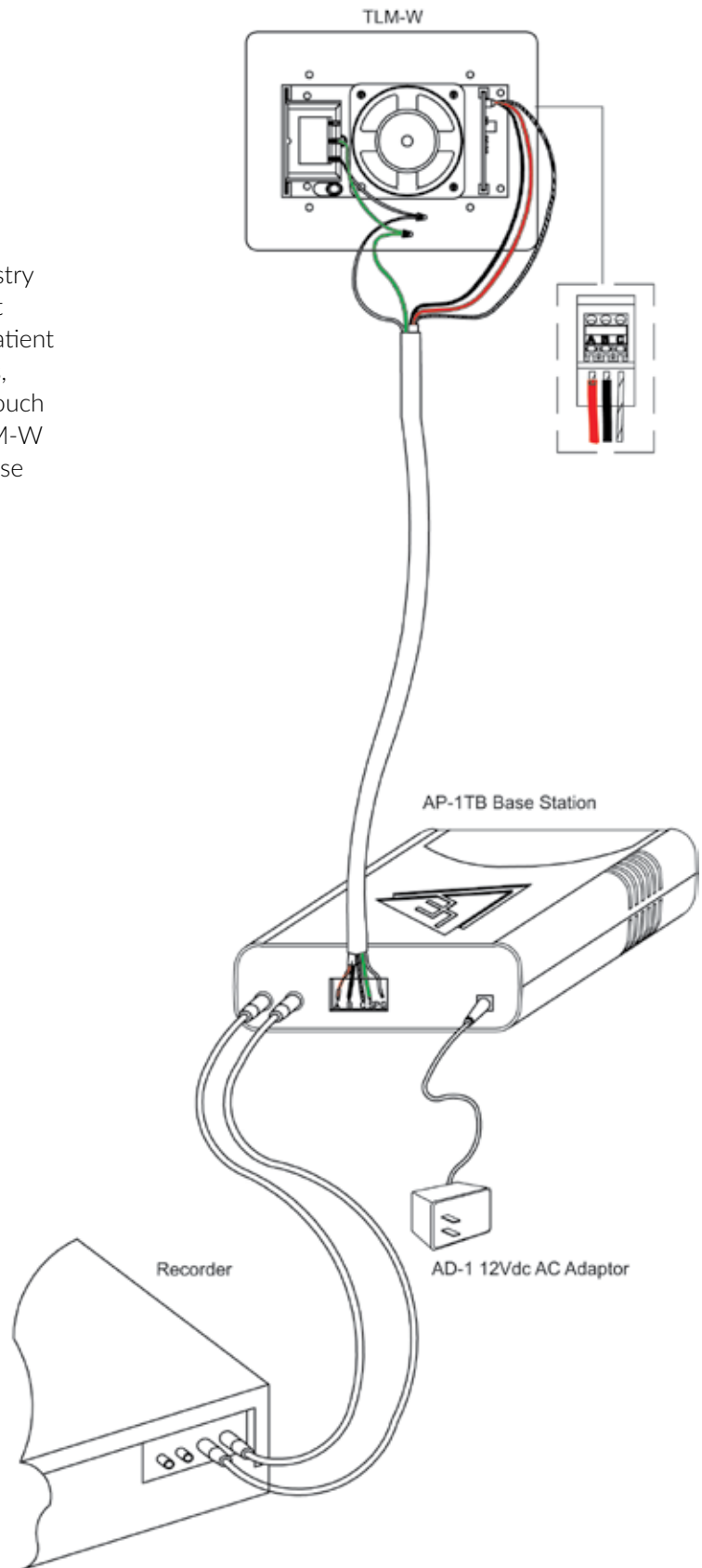
- > Desktop base station with built-in microphone and speaker
- > RCA input/output to DVR for recording and playback
- > Volume control for both listen and talkback
- > Speaker/microphone may be mounted up to 1000' from base station
- > Surface mounted to a plastic backbox (supplied) or flush mounted into a 3-gang electrical box

## Kit Includes

- > TLM-W Speaker/Microphone
- > AP-1TB Desktop Base Station
- > AD-1 12 Vdc power supply
- > Dual RCA cable

## Compatible With

- > DVRs



# 500 Series - Talk Listen

## Audio Monitoring Systems



	Talk/Listen		
Model	ASK-4® kit #501	ASK-4® kit #501-TLI-CF	ASK-4® kit #501-TLI-CS
LE Product Number	LE-025	LE-371	LE-373
Speakerphone Mounting	Wall	Flush ceiling	Surface ceiling
Indoor/Outdoor	Indoor		
Includes			
Speaker/Microphone	TLM-W	TLI-CF	TLI-CS
Base Station	AP-1TB		
Cable	Dual RCA cable		
Power Supply	AD-1 12 Vdc		

### Specifications

Microphone		
Pick Up Pattern	Omni-directional, within 30' diameter circle	
Type	Electret condenser	
Sensitivity	-45 dBV/Pa      1 Pa = 94 dB SPL	
Frequency Response	50 Hz to 15 kHz	
Output	Line level (0 dBV, 600 Ω @ 1 kHz)	
Current Drain	10 mA	
Supply Voltage	AD-1 12 Vdc, 500 mA	
Speaker		
Speaker Power Output	7W	20W
Input	70V constant	
Frequency Response	30 Hz to 20 kHz	60 Hz to 17 kHz
Speaker Impedance	8 Ω	
Speaker Magnet	1.7 oz	10 oz
Speaker Size	2.5"	8"
Dimensions	Faceplate: 6.8" L x 5.12" W x 0.5" D Backbox: 6.92" L x 5.12" W x 1.62" D	Faceplate: 12 7⁄8" dia x 2 3⁄4" D Mounting ring: 12 3⁄8" x 3" D
Weight	13 oz	4 lbs 8.5 oz
Base Station		
Monitor Output Power	1W @ 8 Ω	
Audio Input Impedance	10 kΩ	
Frequency Response	100 Hz to 10 kHz	
Headphone Impedance	8 to 600	
Universal Power Supply	12 Vdc, 500 mA	
Dimensions	8 ¼" L x 5 ¾" W x 1 ⅝" H	
Weight	2 lbs 3 oz	
Compatibility	CCTV, DVR	
UL Listed	x	-



# 600 Series - Mute Switch

## Audio Monitoring Systems



	Audio Monitoring With Mute Switch	
Model	ASK-4® kit #601	ASK-4® kit #631
LE Product Number	LE-380	LE-381
Microphone Mounting	Ceiling	
Indoor/Outdoor	Indoor	
Number Of (Speaker) Microphone	1	
Includes		
(Speaker) Microphone	Verifact® A	
Base Station/Interface	APR-1	IF-1
Mute Switch	MS-1	
Cable	Dual RCA cable	3.5 mm stereo cable, RCA cable and adapters
Power Supply	AD-1 12 Vdc	

### Specifications

Microphone		
Pick Up Pattern	Omni-directional, within 30' diameter circle	
Type	Electret condenser	
Sensitivity	-45 dBV/Pa    1 Pa = 94 dB SPL	
Frequency Response	50 Hz to 15 kHz	
Output	Line level (0 dBV, 600 Ω @ 1 kHz)	
Current Drain	10 mA	
Supply Voltage	AD-1 12 Vdc, 500 mA	
Housing	High impact anti static ABS	
Dimensions	4" dia x 1 ½" H	
Weight	3.5 oz	
	Base Station	Interface
Monitor Output Power	1W @ 8 Ω	-
Audio Input Impedance	10 kΩ	20 kΩ
Frequency Response	100 Hz to 10 kHz	50 Hz to 15 kHz
Audio Output Impedance	600 Ω @ 1 kHz	
Universal Power Supply	12 Vdc, 500 mA	
Dimensions	8 ¼" L x 5 ¾" W x 1 ¾" H	6 ½" L x 4 ¾" W x 1 ¼" H
Weight	1 lb 6 oz	5.5 oz
Switch		
Supply Voltage	12 Vdc	
Faceplate	Stainless steel	
Backbox	Single gang electrical box (not included)	
Dimensions	2 ¾" W x 4 ½" H	
Weight	2.5 oz	
Compatibility	CCTV, DVR	DVR, IP camera, encoder
UL Listed	-	



NEW

# Audio Analytics

Audio analytics is ability to **analyze and identify** sounds. Similar to how the human ear processes audio, analytic software analyzes sounds through **advanced algorithms** and classifies it into a predetermined category such as aggression or breaking glass. Audio analytics add **accuracy** to security systems and provide many benefits.



Retail



Education



Commercial



Transportation



Law Enforcement



Banking



C-store



Hospitality



Healthcare

Audio Analytics Suite



### Aggression Detector

This aggression detector is capable of recognizing aggression in a person's voice. Staff can thus be warned at an early stage. The system automatically and objectively detects (rising) human aggression, anger or fear, warns staff immediately so that physical aggression can be prevented.



### Gunshot Detector

The Gunshot Detector recognizes firearm discharge in different settings. Within seconds of a gunshot, the software accurately classifies and triggers an immediate notification. Security staff can then reduce the response time of personnel. This analytic can successfully detect most firearms including handguns, shotguns, rifles and automatic rifles.



### Glass Break Detector

The Glass Break Detector software easily integrates into existing video systems, eliminating the need for additional devices. The detector is designed to classify the breakage of today's most commonly used glass including laminated, single or double plate, tempered and wired glass.



### Car Alarm Detector

The Car Alarm Detector classifies the specific sound pattern produced in today's most common car alarms systems. The software can detect up to 300 feet away, making it ideal for any location with many cars such as a parking garage or car dealership.

### How it Works

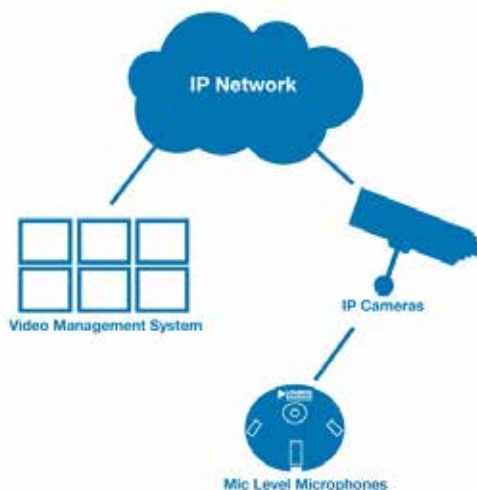
Audio analytics isolate and identify specific sound patterns from the overall ambient sound, much like the human ear does. Within seconds of identifying the specific sound like verbal aggression or fear, breaking glass or a gunshot, the system will automatically send out an alert.

### Benefits

- > Proactive response
- > Cost-effective investment
- > Monitoring efficiency
- > Real-time engagement
- > Confidentiality

### Detection Range

Sound	Distance
Aggression	115 ft
Car Alarm	230 ft
Gunshot	245 ft
Breaking Glass	115 ft



# Speaker Microphones

## Speaker Microphones For Louroe Base Stations






Enabling hands free remote talk/listen capability, Louroe Speaker/Microphones contain Verifact<sup>®</sup> microphones and a speaker within a single housing. Speaker size and power handling varies depending on model. Louroe speaker/microphones provide two-way talk/listen capabilities between the remote station and the Louroe base station.







## Remote Call Stations

Designed for sound activated base stations, remote call stations contain a 3" or 4" speaker and Verifact<sup>®</sup> line level microphone mounted on the back of a vandal resistant stainless steel faceplate. Some of the call stations include a call button for activating the alarming base station.

## Speaker Microphone For IP Cameras

Louroe provides speaker microphones for direct connection to IP cameras.

Speaker Microphones For Louroe Base Stations	Ceiling				
	Surface			Flush	
	4" Speaker	8" Speaker			
	TLM-CS	TLI-CS	TLI-VR-SQ	TLI-CF	TLI-VR-F
					

Speaker Microphones For Louroe Base Stations	Wall-Indoor	Outdoor		Corner	No Housing	
	2.5" Speaker	With Mic	No Mic			
	TLM-W	TLO*	TLO-NM*	TLM-E	TLSP-CM	TLI
						

\*requires AOP-SP70

# Speaker Microphones

Remote Call Stations	Wall-Indoor				Outdoor
	Surface		Flush		
	TLSP-S	TLSP-PB-WS	TLSP-F	TLSP-PB-WF	TLMC-W
					

Speaker Microphone For IP Cameras	Ceiling		Outdoor	
	Surface		Flush	
	AOP-SP-CS	AOP-SP-CF	AOP530	AOP540
			 NEW	 NEW





# Digifact<sup>®</sup> A

The all-new Digifact<sup>®</sup> A is an **IP microphone** with **audio analytics capabilities** and an onboard processor to meet today's security needs. The Digifact features a **quad-core processor** that streams audio over multiple industry standards including Real Time Streaming Protocol (RTSP) and can be easily connected to leading VMS platforms. It incorporates **audio and signal processing** for clear audio capture quality and a wide dynamic range.

The microphone's **decibel level threshold alarming** can create alarms based on specific dB levels and trigger relay outputs to cameras or other equipment making it capable of operating independently or as part of a larger security solution. When utilized with audio analytics, the Digifact<sup>®</sup> A can automatically detect gunshots, aggression, car alarms and/or glass breakage.



Education



Commercial



Law Enforcement



Banking



Healthcare

IP Microphone

Market

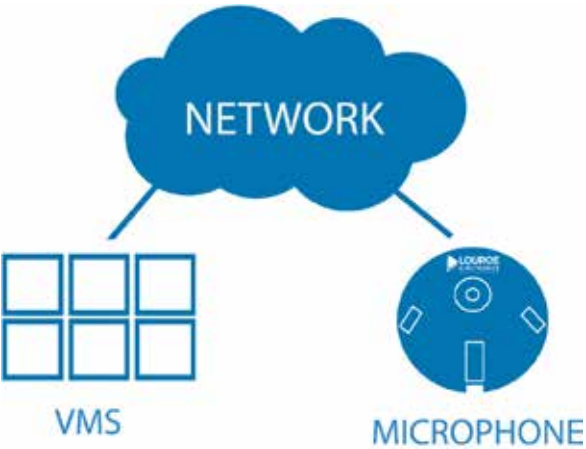
- > Ideal for education, law enforcement, hospitals, banks and other commercial applications

Features

- > PoE connectivity (IEEE802.3af compliant)
- > Audio Analytics Capabilities
- > Sound decibel level threshold alarming
- > Digital alarm output ports

Compatible With

- > API integration with Video Management Systems
- > Audio Analytics including Gunshot and Aggression detection
- > Existing security systems through RTSP



Technical Specifications

Audio	
Audio Streaming	One-Way
Pick Up Pattern	Omni-directional, 30' diameter circle
Sensitivity	- 45 dBV/Pa, 1 Pa = 94 dB SPL
Frequency Response	50 Hz to 15 kHz
Network	
Supported protocols	IPv4, HTTP, RTSP, RTP, TCP, SSH
Security	Password protection, user level access
General	
Enclosure	High Impact Anti-Static ABS
Power	Power over Ethernet IEEE802.3af Optional external 5V DC 2A
Memory	512 MB RAM
Event Trigger	Audio analytics, decibel threshold
Event Actions	TCP notification, external output activation, pre and post-alarm audio recording to Network Attached Storage (NAS)
Connectors	Female RJ45 for 10BASE-T/100BASE-TX PoE; 5-pin header for four outputs (5V DC), max load 100mA; 2-pin header for 5V DC 2A input



NEW

# AOP530

The AOP530 is our analog two-way speaker microphone.

**Echo cancellation** and full-duplex technology allows for two-way communication with **excellent quality of sound**. It contains a built-in microphone and a 2.5" speaker for accomplishing bi-directional audio. The AOP530 is easy to install **connecting directly to IP cameras** and encoders that feature two-way, line level audio. It can be used for indoor or outdoor due to its **vandal resistant housing**.

\*Microphone is also available without a push button as the AOP540.



Education



Commercial



Transportation



Law Enforcement



Banking



Healthcare

Full-Duplex

Vandal Resistant

## Markets

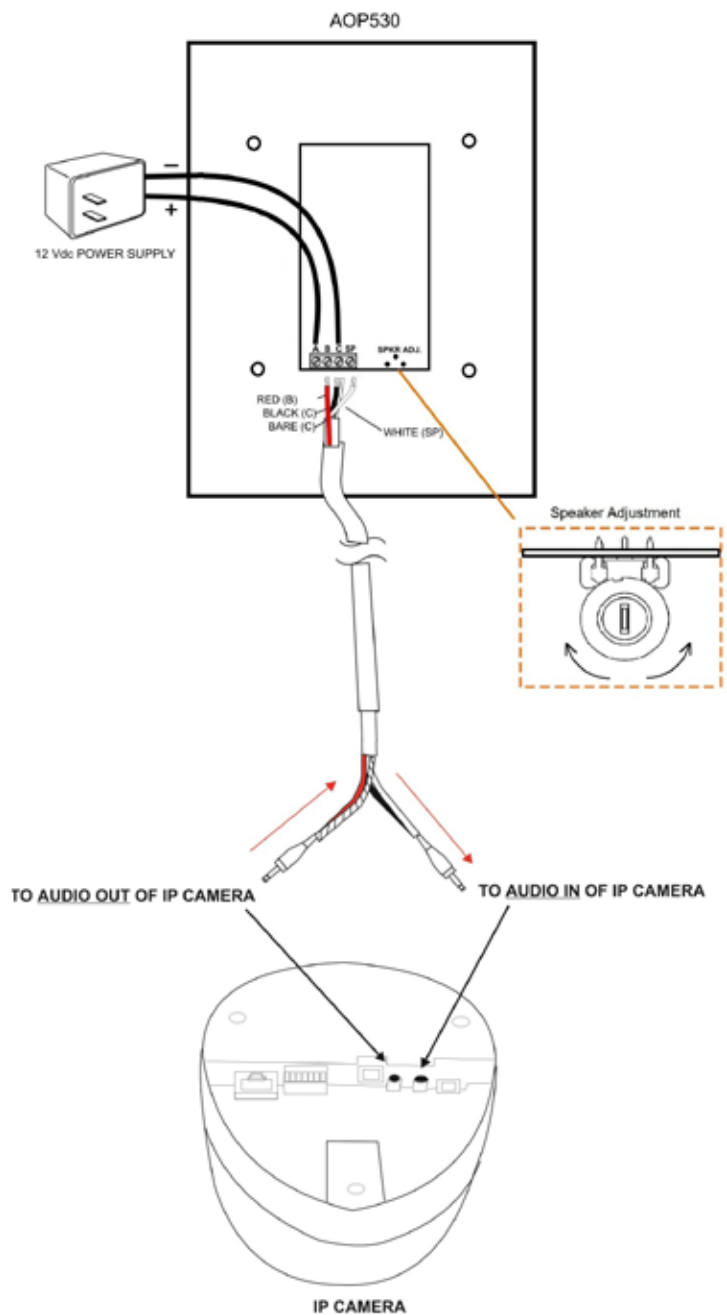
Recommended for commercial facilities, main entrance of schools, restricted areas in seaport, airports or medical facilities.

## Features

- > Line level input and output (0 dBV)
- > Full-Duplex Communication with DSP technology
- > Vandal resistant, stainless steel faceplate that fits into a 3 gang electrical box
- > Dry contact blue illuminated pushbutton that's immediately identifiable in the dark

## Compatible With

- > IP cameras
- > Network devices supporting two-way communication
- > Intercom systems featuring line level audio support





# TLO

Model TLO is a **two-way speaker/microphone** for high volume penetration. Weatherized for **outdoor use**, it is a microphone and speaker within one housing. In operation, the TLO provides both listen and talkback capabilities between the remote zone and a Louroe audio base station. When connected through a Louroe AOP-SP70 Audio Conversion Unit, it can also be interfaced with other audio receiving devices such as DVRs, IP Network Cameras and Video Servers.



Retail



Education



Commercial



Transportation



Law Enforcement



Banking



C-store



Hospitality



Healthcare

**Built in Mic**



## Markets

The TLO is designed for outdoor use and is commonly used for public safety in a retailer's parking lot, backdoors, alleyways, remote access gate, dealerships or other perimeter protection applications. It can be used to help quickly deter theft, or to communicate with customers when an incident arises in the parking lot. The TLO can be connected to a base station or IP camera thanks to the AOP-SP70.

## Features

- > Weather resistant for outdoor use
- > Omni-directional microphone and horn speaker
- > May be used in damp, moist environment
- > May be mounted up to 1000' from Louroe base station
- > Mounting bracket (2 ½" dia) for vertical and horizontal positioning

## Best Value When Used With



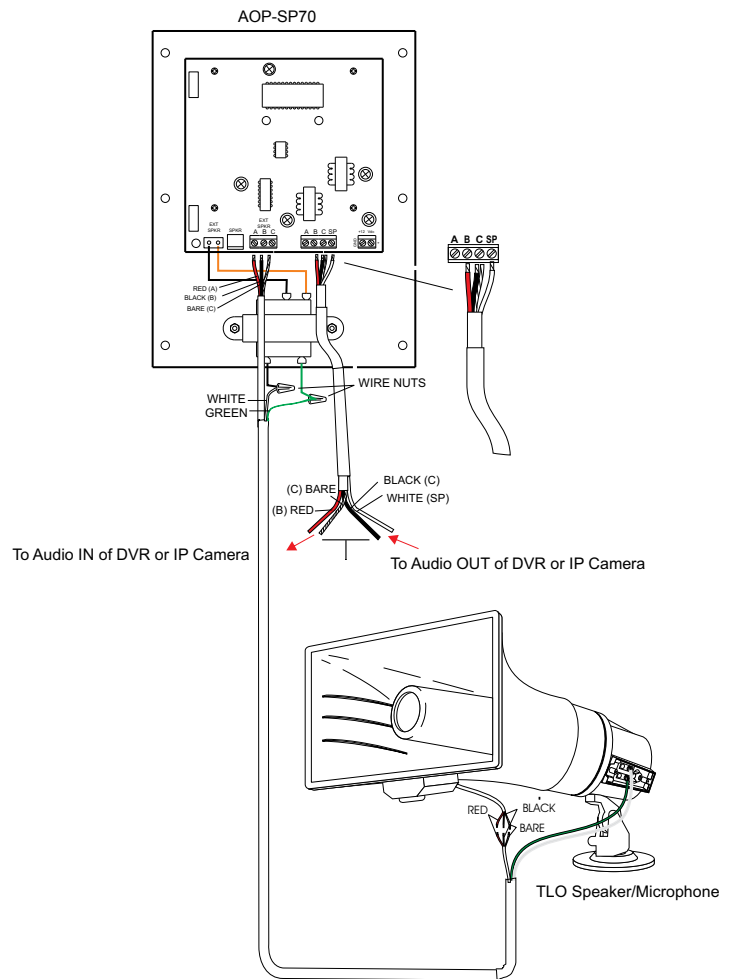
AOP-SP70 p65

## AOP-SP70

- > Contains audio inputs (terminal blocks) for microphone and speaker connection from Louroe Model TLO
- > Sends power to speaker/microphone (TLO)
- > Drives audio signals into DVR, IP network, cameras
- > Amplifies talkback from receiving device for broadcast through TLO Speaker
- > Contains level controls for listen and talkback
- > Contains built-in 12 Vdc power jack
- > 12 Vdc power supply included

## Compatible With

- > DVRs, IP cameras



# IP Speaker Microphone And Remote Call Stations

## Speaker Microphones

### Remote Call Stations



Model	TLSP-S	TLSP-PB-WS	TLSP-F	TLSP-PB-WF	TLMC-W
LE Product Number	LE-086	LE-096	LE-082	LE-097	LE-169
Speakerphone Mounting	Surface wall		Flush wall		Wall
Indoor/Outdoor	Indoor				Outdoor-weather resistant

### Specifications

Microphone		
Type/Pick Up Pattern	Electret condenser/omni-directional, within 30' diameter circle	
Sensitivity	-45 dBV/Pa      1 Pa = 94 dB SPL	
Frequency Response (-3dB)	40 Hz to 15 kHz	
Output	Line level (0 dBV, 600 Ω @ 1 kHz)	
Current Drain	10 mA	40 mA
Supply Voltage	12 Vdc	
Speaker		
Input/Distribution	70V Line/Constant-voltage	
Speaker Power Handling	2W max. (2450 Ω @ 70V)	7W max. (715 Ω @ 70V)
Frequency Response (-3dB)	30 Hz to 20 kHz	
Speaker Magnet	1.73 oz	
Speaker Size	3"	4"
Housing		
Material	Vandal resistant stainless steel	Stainless steel
Weight	4 lbs	2 lbs
Dimensions	Faceplate: 6" x 6" Backbox: 6" H x 6" W x 4" D	Faceplate: 7" x 7" Backbox: 6" H x 6" W x 4" D
		Faceplate: 6 ¼" H x 8" W Backbox: 8" L x 6 ¼" W x 2 ¾" D
Compatibility	Louroe 2-Way Base Stations	
UL Listed	-	

# Speaker Mic For IP Camera

## Speaker Microphones



NEW



NEW



Model	AOP-SP-CS	AOP-SP-CF	AOP530	AOP540
LE Product Number	LE-114	LE-115	LE-530	LE-540
Speakerphone Mounting	Surface ceiling	Flush ceiling	Wall	
Indoor/Outdoor	Indoor		Outdoor-weather resistant	

### Specifications

Microphone			
Pick Up Pattern	Omni-directional, within 30' diameter circle		Omni-directional
Type	Electret condenser		
Sensitivity	-45 dBV/Pa     1 Pa = 94 dB SPL		-45 dBV
Frequency Response	40 Hz to 15 kHz		
Output	Line level (0 dBV, 600 Ω @ 1 kHz)		Line level (0 dBV, 50 Ω @ 1 kHz)
Current Drain	200 mA		600 mA
Supply Voltage	12 Vdc		Nominally 12 Vdc (10-16 Vdc)
Speaker			
Speaker Output Power	1W @ 8 Ω		2.5W @ 8 Ω
Input	Line level 600 Ω @ 1 kHz		Line level 10 Ω @ 1 kHz
Frequency Response	30 Hz to 20 kHz		300 to 400 kHz
Speaker Magnet	1.73 oz Ceramic		Neodymium
Speaker Size	4"		2"
Housing			
Material	Steel		Stainless steel
Weight	2 lbs 12 oz		1 lb 6 oz     1 lb 4 oz
Dimensions	Grill: 12 7⁄8" dia Backbox: 12 7⁄8" dia x 3" H	Grill: 12 7⁄8" dia	Faceplate: 6.5" H x 4.88" W Backbox: 5.25" L x 2.68" W x 1.8" D
Compatibility	DVR, IP camera, encoder		CCTV, DVR
UL Listed	x		

# Speaker Microphones For Louroe Base Stations

## Speaker Microphones



Model	TLM-CS	TLI-CS	TLI-VR-SQ	TLI-CF	TLI-VR-F	TLM-W
LE Product Number	LE-027	LE-226	LE-218	LE-227	LE-216	LE-007
Speakerphone Mounting	Surface ceiling			Flush ceiling		Wall
Indoor/Outdoor	Indoor					

### Specifications

Microphone						
Type/Pick Up Pattern	Electret condenser/omni-directional, within 30' diameter circle					
Sensitivity	-45 dBV/Pa      1 Pa = 94 dB SPL					
Frequency Response	40 Hz to 15 kHz					
Output	Line level (0 dBV, 600 Ω @ 1 kHz)					
Current Drain	10 mA					
Supply Voltage	12 Vdc					
Speaker						
Input/Distribution	70V Line/Constant-voltage					
Speaker Power Handling	7W max. (715 Ω @ 70V)	15W max. (308 Ω @ 70V)				7W max. (715 Ω @ 70V)
Frequency Response	30 Hz to 20 kHz	65 Hz to 17 kHz				30 Hz to 20 kHz
Speaker Magnet	1.73 oz Ceramic	5 oz Ceramic				1.73 oz Ceramic
Speaker Size	4"	8"				2.5"
Housing						
Material	Steel		Vandal resistant steel	Steel		High impact ABS
Dimensions	Faceplate: 7 7⁄8" dia x 2 3⁄4" D Mounting ring: 7 7⁄8" dia x 3" D	Faceplate: 12 7⁄8" dia x 2 3⁄4" D Mounting ring: 12 7⁄8" dia x 3" D	(Incl. flange) 13" H x 11" W x 4" D	Faceplate: 12 7⁄8" dia x 2 3⁄4" D Backbox: 12 3⁄4" dia x 4"D		Faceplate: 6.8" L x 5.12" W x 0.5" D Backbox: 6.92" L x 5.12" W x 1.62" D
Weight	1 lb 8 oz	2 lbs 10 oz	5 lbs 14 oz	2 lbs	3 lbs 10 oz	13 oz
Compatibility	Louroe 2-Way Base Stations					
UL Listed	-					

# Speaker Microphones For Louroe Base Stations

## Speaker Microphones



Model	TLM-E	TLSP-CM	TLI	TLO	TLO-NM
<b>LE Product Number</b>	LE-168	LE-092	LE-080	LE-084	LE-085
<b>Speakerphone Mounting</b>	Wall	Corner			
<b>Indoor/Outdoor</b>	Outdoor-weather resistant	Indoor	No housing	Outdoor-weather resistant	

### Specifications

Microphone					
Type/Pick Up Pattern	Electret condenser/omni-directional, within 30' diameter circle				No Microphone
Sensitivity	-45 dBV/Pa    1 Pa = 94 dB SPL				
Frequency Response	40 Hz to 15 kHz				
Output	Line level (0 dBV, 600 Ω @ 1 kHz)				
Current Drain	10 mA	4 mA	10 mA	10 mA	
Supply Voltage	12 Vdc				
Speaker					
Input/Distribution	70V Line/Constant-voltage				
Speaker Power Handling	7W max. (715 Ω @ 70V)		20W (245 @ 70V)	30W max. @ 167 Ω (Setting 5)	
Frequency Response	30 Hz to 20 kHz	300 Hz to 4 kHz	65 Hz to 17 kHz	350 Hz to 14 kHz	
Speaker Magnet	1.73 oz Ceramic		5 oz Ceramic	-	
Speaker Size	4"	3"	-		
Housing					
Material	Stainless steel	Steel	-	Heavy duty ABS resin	
Dimensions	Faceplate: 8" H x 6 ¼" W Backbox: 8" H x 6 ¼" W x 2 ¾" D	Faceplate: 10" L x 6" W x 4 ½" D	8" dia x 2 ⅝" D	11" W x 6 ⅝" H x 12 ¾" D	
Weight	1 lb 6 oz	2 lbs 13 oz	1 lb 11 oz	5 lbs 5 oz	
Compatibility	Louroe 2-Way Base Stations			Louroe 2-Way Base Stations and AOP-SP70	
UL Listed	-				



# Audio Base Stations

## One Way Listen

Models APR-1, AP-2, AP-4, and AP-8 are non-alarming audio monitoring base stations. When used in conjunction with Louroe Verifact® microphones they provide live audio, delivered through the built-in amplifier and 3" (76.2 mm) speaker. Zone selection is by pushbutton (except for model APR-1 which is a single zone unit). All have RCA type line level outputs for connection to a recording device.


## Two-Way Listen/Talk

Non-alarming listen/talk base stations are available from 1 to 16 zones. When combined with Louroe speaker microphones they provide both listening and talkback capability between the base station and remote unit. Each base station has the same number of audio outputs as it has microphone inputs for connections to recording devices. Models are compatible with Louroe speaker/microphone models TLI, TLM, TLO, and TLSP.

## Sound Activated

These models provide sound activated alarming when used in conjunction with Louroe microphones or speaker/microphones. Each zone has a variable alarming threshold level (set by user or installer) based on frequency and sound pressure that activates when a sound exceeds the set threshold level. An audible alarm and lighted LED identifies the zone, along with a relay contact for activating a camera or other technology. Included are a hand-held sound generator for assistance in setting threshold levels and a portable test amplifier for checking.

# Audio Base Stations

		1 Zone	2 Zones	4 Zones	8 Zones	16 Zones
One Way Listen		APR-1	AP-2	AP-4	AP-8	
						
		Rack Mount				
		APR-1-RM	AP-2-RM	AP-4-RM	AP-8-RM	
Two-Way - Listen/Talk		AP1-TB		AP-4TB	AP-8TB	AP-16TB
						
		Rack Mount				
		APR-1TB-RM		AP-4TB-RM	AP-8TB-RM	AP-16TB-RM
						
Sound Activated Alarming						
12 Zones				25 Zones		
DG-12II + DG-MA (DG-12II requires companion DG-MA)				DG-25III + DG-MA (DG-25III requires companion DG-MA)		
						

# One Way Listen

## Audio Base Stations



Model	APR-1	APR-1-RM	AP-2	AP-2-RM
LE Product Number	LE-146	LE-137	LE-432	LE-147
Zones	1		2	
Rack Mounted	-	x	-	x

### Specifications

Monitor Output Power	1W @ 8 $\Omega$			
Audio Input Impedance	10K			
Frequency Response	100 Hz to 10 kHz			
Headphone Impedance	8 to 600 $\Omega$			
Universal Power Supply	12 Vdc, 500 mA			
Dimensions	8 ¼" L x 5 ¾" W x 1 ¾" H	19"L x 3 ½" W x 8 ¼" D	6 ¾" W x 8 ¾" L x 2 ½" H	19"L x 3 ½" W x 8 ¾" D
Weight	1 lb 6 oz	2 lbs 6 oz	1 lb 5 oz	2 lbs 13 oz
Compatibility	CCTV, DVR			
UL Listed	x			



Model	AP-4	AP-4-RM	AP-8	AP-8-RM
LE Product Number	LE-434	LE-166	LE-425	LE-167
Zones	4		8	
Rack Mounted	-	x	-	x

### Specifications

Monitor Output Power	1W @ 8 $\Omega$			
Audio Input Impedance	10K			
Frequency Response	100 Hz to 10 kHz			
Headphone Impedance	8 to 600 $\Omega$			
Universal Power Supply	12 Vdc, 500 mA			
Dimensions	6 ¾" W x 8 ¾" L x 2 ½" H	19"L x 3 ½" W x 8 ¾" D	6 ¾" W x 8 ¾" L x 2 ½" H	19"L x 3 ½" W x 8 ¾" D
Weight	1 lb 7 oz	2 lbs 13.5 oz	1 lb 10 oz	3 lbs
Compatibility	CCTV, DVR			
UL Listed	x			

# Two-Way Listen-Talk

## Audio Base Stations



Model	AP-1TB	AP-1TB-RM	AP-4TB	AP-4TB-RM
LE Product Number	LE-001	LE-148	LE-322	LE-342
Zones	1		4	
Rack Mounted	-	x	-	x

### Specifications

Monitor Output Power	1W @ 8 Ω			
Audio Input Impedance	10K			
Frequency Response	100 Hz to 10 kHz			
Headphone Impedance	8 to 600 Ω			
Power Supply	12 Vdc, 500 mA		115 Vac	
Dimensions	8 ½" L x 5 ¾" W x 1 ¾" H	19" L x 3 ½" W x 8 ¼" D	12 ½" L x 10 ¼" W x 2 ½" H	19" L x 3 ½" W x 10 ¼" D
Weight	2 lbs 3 oz	3 lbs 9 oz	8 lbs 6 oz	9 lbs 9 oz
Compatibility	DVR			
UL Listed	x		-	



Model	AP-8TB	AP-8TB-RM	AP-16TB	AP-16TB-RM	DG-MA	DG12II	DG-25III
LE Product Number	LE-323	LE-344	LE-316	LE-302	LE-175	LE-065	LE-066
Zones	8		16		2	12	25
Rack Mounted	-	x	-		x		

### Specifications

Monitor Output Power	1W @ 8 Ω					-	
Audio Input Impedance	10K					5 kΩ @ 1 kHz	
Frequency Response	100 Hz to 10 kHz						
Headphone Impedance	8 to 600 Ω					-	
Power Supply	115 Vac		24 Vdc, 1A		115 Vac	15 Vdc, 12A	
Dimensions	12 ½" L x 10 ¼" W x 2 ½" H	19" L x 3 ½" W x 10 ¼" D	15" L x 12 ½" W x 2 ¾" H	19" L x 7" W x 12 ½" D	19" W x 3 ½" H x 10 ½" D	19" W x 7" H x 10 ¼" D	
Weight	8 lbs 12 oz	8 lbs 14 oz	8 lbs 4 oz	10 lbs 14 oz	12 lbs	16.5 lbs	17.5 lbs (7.95 lbs)
Compatibility	DVR					Sound activated alarming system	
UL Listed	-						

# Audio Adapters

## Audio Adapters

These offer plug and play installation and adjustable gain management to insure high audio quality with the receiving device.

### Audio Interface

For ease of interface of audio to DVRs, Cameras, Video Servers, or PC Soundcards, Louroe provides a series of Audio Interface Adapters. These adapters receive the microphone signal and drive it into the Audio Input of the receiving or recording device.

### Audio Over PoE

The IF-PX is an audio-oriented, single zone Power over Ethernet extractor that extracts power from an Ethernet connection to power Louroe's one-way or two-way audio products.

### Microphone Speaker Mixers

The RN-2, MLA-4, and MLA-8 mixers combine two, four, and eight microphones respectively into a single audio output. The mixers provide for audio zone expansion, and the multiple microphones are not on separate channels.

### Speakerphone Converter For TL Series

Model AOP-SP70 is an interface used with the TLO, a two-way speaker/microphone. It converts the audio signal of the TLO providing two-way audio with a DVR, IP Network Camera or Video Server. In addition, the AOP-SP70 provides 12 Vdc power to the TLO.

### Distribution Amplifier












Model DA-4 is a four zone audio distribution amplifier. It accepts a single input signal and provides this same signal to 4 isolated outputs.

### Sound Activated Switch

The SA-1A sound activated switch provides sound activated alarming for a single audio zone.



# Audio Adapters

	1 Zone	2 Zones	4 Zones	8 Zones
Audio Interface	IF-1 	IF-2 	IF-4 	IF-8 
Audio Over PoE	IF-PX 			
Microphone/Speaker Mixers		RN-2 	MLA-4 	MLA-8 
Two-Way Speakerphone Converter For TL Series	AOP-SP70 			
Distribution Amplifier (4 Outputs)	DA-4 			
Sound Activated Switch	SA-1A 			



# IF-PX

The IF-PX is an audio-oriented, single zone power over Ethernet extractor that **extracts power from an ethernet connection** to power Louroe's one-way or two-way audio solutions. The **PoE Extractor** interfaces with Louroe speakerphones, microphones and other external devices that require a 12 Vdc supply such as system accessories and non PoE cameras. The IF-PX also permits audio and video equipment to be powered by a single run of CAT5, CAT5e or CAT6 cable. The IF-PX enhances the functionality of audio security systems by eliminating the need for a power supply. It also provides **seamless installation** with 15W PoE (802.3af) standards and easy integration with IP cameras.



Retail



Education



Commercial



Transportation



Law Enforcement



Banking



C-store



Hospitality



Healthcare

PoE Extractor



## Features

- > Supports mode A and B power options IEEE (802.3af)
- > +12 Vdc power output for external equipment
- > Variable gain audio output potentiometer
- > Local auxiliary in/out for IP cameras
- > Thermal overload protection
- > Short circuit protection
- > Data only RJ-45 output jack

## Included In



ASK-4® kit #350  
p36



ASK-4® kit #370  
p36

## Generally Used With



All Louroe line level mic



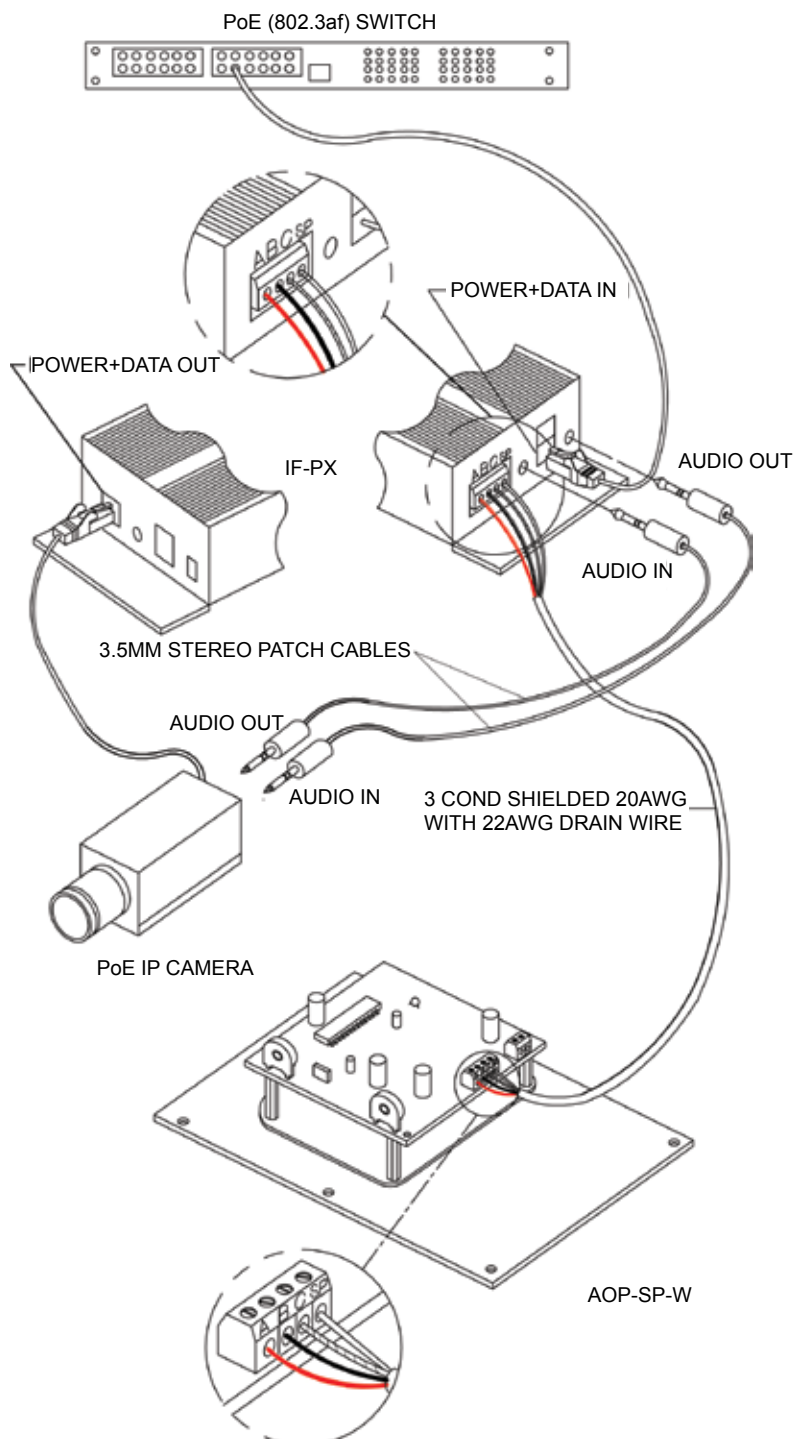
AOP Series p53

## Compatible With

- > IP cameras



PATENT NO: 9,363,091



# Adapters

## Audio Adapters



	Audio Interface				Audio Over PoE
Model	IF-1	IF-2	IF-4	IF-8	IF-PX
LE Product Number	LE-328	LE-273	LE-288	LE-289	LE-520

### Specifications

Input (3-pin terminal block)	Line level				
Audio Input Impedance	18 kΩ	20 kΩ			10 MΩ
Audio Output Impedance	600 Ω @ 1 kHz	400 Ω @ 1 kHz	600 Ω @ 1 kHz		
Audio Output Gain	Adjustable, up to +10 dB				
Power Requirements	+12 Vdc, 500 mA				PoE (802.3af) or 12 Vdc, 2A Ext
Material	High impact ABS				Black anodized Al 14 Ga
Ethernet Connectors	-				RJ-45 CAT5 input and output jacks
Connectors	Terminal block, RCA jack, 3.5 mm stereo jack, DC jack	Terminal blocks, RCA jacks, DC jack		Terminal block, RCA jack, adapters, DC jack	RJ-45, DC jack, Terminal block for microphone/speaker
Voltage Input	12 Vdc				36V - 57V
Dimensions	6 ⅞" L x 4 ⅝" W x 1 ⅜" H		11 ½" L x 4 ¾" W x 1 ½" H		6" L x 3 ½" W x 2 ⅞" H
Weight	5.5 oz	7 oz	12.5 oz	13.5 oz	13 oz
Operating Temperature	0 to 70°C				-20°C to +65°C
Compatibility	DVR, IP camera, encoder, recorder				IP camera, encoder
UL Listed	-				x

# Adapters

## Audio Adapters



	Microphone Mixers				Speakerphone Converter	Distribution Amplifier	Sound Activated Switch
Model	RN-2	MLA-4	MLA-6	MLA-8	AOP-SP70	DA-4	SA-1A
LE Product Number	LE-110	LE-217	LE-111	LE-276	LE-129	LE-224	LE-230

### Specifications

Input Impedance	20 kΩ	18 kΩ		600 Ω	15 kΩ	10 kΩ
Input Level	Line level					
Output Impedance	1 kΩ	600 Ω				
Output Level	Line level (0 dBV, 1 kΩ @ 1 kHz)					
Output Gain	+5 dB	+10 dB max gain adjustable			+15 dB	
Frequency Response	100 Hz to 10 kHz					
Current Drain	10 mA	25 mA		200 mA	25 mA	70 mA
Relay Contact	-					5A @ 277 Vac or 5A @ 30 Vdc
Relay Latch Time	-					0.5 to 60 seconds
Voltage Supply	12 Vdc					
Dimensions	6 ⅞" L x 4" W x 1 ⅜" H	6 ⅞" L x 4 ⅞" W x 1 ⅜" H	11 ½" L x 4 ¾" W x 1 ½" H	8 ⅞" L x 7 ⅞" W x 2 ¾" H	6 ⅞" L x 4 ⅞" W x 1 ⅜" H	6 ⅞" L x 4 ⅞" W x 1 ⅞" H
Weight	5.5 oz		10 oz	3 lbs 8.5 oz	8 oz	7 oz
Input/Output Connections	Terminal block	DC jack, Terminal block, RCA		Terminal blocks	DC jack, RCA	DC jack, Terminal block, RCA
Compatibility	Louroe Base Stations, DVR			DVR, encoder, IP camera	Louroe Base Stations, DVR	
UL Listed	-					

# Accessories



Remote Call Stations Pushbutton Activated		
Model	DCS	DCS-1
LE Product Number	LE-100	LE-119

## Specifications (Microphone)

Output	-	Line level (0 dB @ 600 $\Omega$ unbalanced)
Sensitivity	-	-45 dB
Frequency Response	-	40 Hz to 15 kHz
Current Drain	-	10 mA

## Specifications (Oscillator)

Supply Voltage	12 Vdc	
Tone Output	3 Vrms into 10 k $\Omega$ load @ 3 kHz	
Weight	2.5 oz	4 oz
Dimensions	4 ½" L x 2 ¾" W	
Material	Stainless steel	



Switches			
Model	MS-1	MS-2-REC	HD-10
LE Product Number	LE-331	LE-332	LE-272

## Specifications

Description	Mute Switch Lighted Rocker Indicator Switches	Mute Switch for Microphone and recorder Lighted Rocker Indicator Switches	Headphone distribution box Single Audio input and 10 Audio outputs jacks for Headphones
Switch Rating	-	9A @ 125 VAC	-
Dimensions	4 ½" L x 2 ¾" W	4 ⅞" L x 4 ⅞" W	5 ⅞" L x 5 ⅞" W x 1 ⅞" H
Material	Stainless steel		Plastic



Backbox				
Model	TLMC	TLM-W	AOPSP	ERD-8
LE Product Number	LE-221	LE-028	LE-029	LE-260

## Specifications

Description	Plastic backbox of AOP-SP and TLMC for flush mounting	Plastic backbox for TLM-W	18 Ga Aluminum backbox for AOP-SP and TLMC-W	Ceiling mount backbox for TLI-CF
Dimensions	8" H x 6 ¼" W x 2 ¾" D	6.9" H x 5" W x 1.65" D	8" L x 6 ¼" W x 2 ¾" D	12 ¼" dia x 4" D
Material	Plastic		Aluminum	Steel



# Accessories



	Ring		Bridge	Grill Baffle		
Model	MR-4	MR-8	SSB-2	BR-4WS	BR-8WS	VRSC
LE Product Number	LE-265	LE-266	LE-269	LE-261	LE-267	LE-081

## Specifications

Description	Mounting ring for TLM-CS	Mounting ring for TLI-CS	Support bridge for TLI to prevent ceiling tile sag	Ceiling flush speaker grill baffle for TLM-CF with 4" speaker	Ceiling flush speaker grill baffle for TLI-CF with 8" speaker	Square surface mount vandal resistant baffle
Dimensions	7.38" dia x 3" D	12.38" dia x 3" D	23 ¾" H x 14 ½" W	7.65" dia	12.87" dia	11" H x 13" W x 4" D
Material	Steel			Aluminum		Steel



Model	HHM-1020	HP-15-135-B
LE Product Number	LE-214	LE-225

## Specifications

Description	Low impedance handheld microphone 600 Ω	Stereo headphone 8 Ω, 100 mW, with ¼" plug volume control on each ear
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Model	PTA-1	SG-1
LE Product Number	LE-220	LE-222

## Specifications

Description	Portable test amplifier used for sound activated base stations	Portable sound generator Emits 3 kHz tone for setting the audio threshold levels of Louroe sound activated base stations
Dimensions	3 ⅞" W x 4 ¼" H x 1 ½" D	2 ⅞" W x 3 ½" H x 1 ¾" D
Weight	5 oz	4 oz



	Power Supplies				
Model	AD-1	AD-3	AD-6PS	AD-1U	AD-3U
LE Product Number	LE-242	LE-243	LE-277	LE-335	LE-336

## Specifications

Description	Power supply		DG-12II and DG-25III power supply	Universal power supply	
Input	100-240 VAC ~50/60 Hz, 0.3A	100-240 VAC ~50/60 Hz, 1.2A	100-240 VAC ~50/60 Hz, 4.5A	100-240 VAC ~50/60 Hz, 0.3A	100-240 VAC ~50/60 Hz, 0.8A
Output	+12 VDC, 500 mA	+24 VDC, 1.5 A	185W MAX, +15 VDC, 12.3A	+12 VDC, 500 mA	+24 VDC, 1A



## Why Audio, Why Not?

It's 2017 and time for a new way of thinking when it comes to security. It's kind of like our five senses, we have each one for a reason and they are all equally valuable. Both audio and video should be on the same playing field but the present reality is that our industry remains focused on video dominated systems.

In today's security landscape where tragic events regularly make headlines, it is imperative that both video and audio reign as kings of the security world to further enhance safety. Why audio so many ask? The answer is compelling.

Imagine walking into your office wearing noise-canceling earphones. You take a detailed look around and everything appears to be okay so you sit down to work. However, in this hypothetical scenario, there is someone shouting for help outside your window. Had you been able to hear their cries for help then you may have called for immediate assistance. The reality is that using video without audio is like living in a silent movie. Let's examine a real-life event where audio performed where video alone couldn't:

**> June 2012 in Greece, New York, Karen Klein Harassed on a School Bus: four schoolboys verbally abused this 68-year-old bus monitor with violent and graphic threats. While the bus' video surveillance captured footage of the boys pointing at her it was the audio footage recorded and later posted to YouTube that provided the most potent evidence – the boys' voices lashing out at her. Ultimately the boys were punished with fines and suspension because of this evidence of verbal assault.**

And that's not all audio is capable of. For example, using a network based two-way audio system along with video, security staff can remotely interact with suspicious persons in real time, rather than needing to physically send a guard to the area. Instead, guards can monitor multiple zones, restricted areas, or commercial locations, better identify threats in progress, and quickly respond with verbal warnings and directions.

In a report from research firm Memoori Business Intelligence titled "The Physical Security Business 2013 to 2017," the global market for security products was expected to total \$23.4 billion at the end of 2013 with video surveillance representing over half (52 percent) of this number, bringing in \$12.26 billion. As if those weren't already impressive numbers, what's more is that research firm, IHS, expects the global demand for video surveillance to grow by more than 12 percent compared to 2013. IHS

reported that in 2013 more than 70 percent of network cameras shipped globally had audio capability; however these functions are estimated to be used less than 10 percent of the time.

It is vital for security professionals to recognize that they are limiting themselves with utilizing video only – audio needs to be part of the overall security plan. One of the key benefits of audio monitoring is the fact that they are compatible with a wide range of other security devices, including cameras, recorders, and software. Specifically, audio serves the security needs of a wide range of organizations including: law enforcement, education, quick service restaurants, convenience stores, healthcare providers, warehouse facilities, utilities and infrastructure, and retail industries.

When it comes to security, audio is critical. There are many ways to use audio, such as monitoring high traffic areas to help keep people safe, equipping businesses with audio security to help them alleviate loss-prevention, providing employee training, conducting day-to-day business and much more.

In addition, a key benefit of audio monitoring is that it helps to combat false alarms and provides a secondary verification. With audio monitoring, alarms can also be activated based on audio sounds (sounds above a specified, adjustable decibel level). For example, in November 2013, police in Evansville, Indiana received a verified audio alarm at a local body shop. When they arrived, two suspects were taken into custody and each had property from the body shop on them. This technology truly provides companies and businesses with the reassurance they need to keep their assets safe.

Let us make audio a more integral part of the overall security discussion. Let us not fall behind as industry leaders but instead start initiating these conversations. We can no longer afford to turn a deaf ear towards audio when it comes to delivering a complete, all-around security solution.



# Retail: Convenience Stores

Using audio to increase retail security and improve operations.

## NEED

There are more than 151,000 c-stores across the nation that bring in more than \$700 billion in sales, according to the National Association of Convenience Stores (NACS). A common challenge that exists for all of these retailers is how to deter crime and robbery. One of the largest convenience store chains in the Midwest and South saw a need to reexamine its equipment to ensure it had the very best technology to combat these security risks.

## SOLUTION

Previously, the c-store chain had used Louroe Electronics' Verifact® A and Verifact® B microphones. However, the retailer relied on an evaluation and recommendation from their trusted advisor and integrator, SageNet as to which audio solution to implement moving forward. SageNet, located in Tulsa, OK, affirmed Louroe's product quality and durability. The integrator suggested that the company continue to install Louroe's audio solutions.

## RESULTS

Today, Louroe's technology is installed in more than 700 of the convenience retailer's locations. The microphones are used for live monitoring to observe business operations, resolve customer disputes, ensure proper customer service, diffuse employee conflict and alert suspicious individuals that they're being monitored.

"Louroe's product durability is great and there have been no complaints. You should continue going with Louroe," said Trey Walling, senior client executive at SageNet.

The track record for Louroe's microphones speaks to why they are the best audio solutions on the market. "I can't recall a single instance in the last seven years where there has been a problem with the Louroe microphone," Walling explained.

Over the years, SageNet has installed a combination of Verifact® A and Verifact® B microphones— three to five microphones per location. Typically, the audio products are mounted on the ceiling above point-of-sales (POS) terminals or other areas of interest.

The audio plays a key role in helping a store manager evaluate interactions at the checkout counter and resolve disputes between customers and employees.

"If you don't have the audio, to go along with the video, you're never going to get the complete story," said Walling. "You're going to have to take someone's word on what was said."

Moreover, if someone attempts to steal merchandise, the person will be alerted. Thanks to the Louroe microphone, staff from remote headquarters can speak to suspects in real-time saying, "you're on camera" or "the police have been notified."

When it comes to the question of whether a retailer should use audio as part of its security system, the answer is clear, according to Walling. "People who are new to the subject, may tend to brush aside audio and say it's not that important," explained Walling. "But I would say, if that were true, we'd all still be going to silent movies."

The final benefit of audio that Walling discussed is how it offers retailers significant protection against liability. "When there's litigation involved and you're going to court or pressing charges, if you can provide that audio file along with the visual to the judges, jury or attorney, it makes your story that much more compelling."





# Education: Cambridge Lakes Charter School

An increased need for the safety of students and staff has caused school systems around the United States to examine their security equipment and protocols.

## NEED

Cambridge Lakes Charter School, which serves 1,000 students grades K-8, needed an audio-video surveillance system to increase security around its perimeter. Specifically, it needed a solution that would detect people coming and going through main entrances and other vulnerable exterior areas on the property.

## SOLUTION

The charter school looked to Jeff Gibson, president and CEO of Tactical Video, to conduct a security assessment. With the school eager to tap into audio and video analytics, Gibson recommended and installed Louroe Electronics' Aggression and Gunshot Detector solutions. These solutions integrate Louroe Verifact® microphones, Sound Intelligence analytic software, select IP cameras, and video management software from leading providers.

The Aggression Detector is mounted at the school's front entrance to detect arguments, elevated discussions and any other signs of verbal aggression, which precedes physical aggression 90 percent of the time according to major reports.

The Gunshot Detector is set up in the center of the first building's collective area.

## RESULTS

The security system is now ready to safeguard students for the 2015-2016 school year. More than detection, it's about prevention. With Louroe's solutions, staff receive early warning signs of high-risk situations and are able to strategically and immediately intervene to deter crime.

In the summer of 2015, Tactical Video installed Louroe Electronics' Aggression Detector at the front entrance of the first building and the Gunshot Detector in the center of that first building's collective area. These detectors integrate Louroe Verifact® microphones for audio capture, Sound Intelligence software for detecting verbal aggression or gunshots, IP cameras for video, and video management software (VMS) to operate the entire solution.

When either the Aggression or Gunshot Detector identifies a pre-classified sound, the end user can use the mapping interface within the VMS software to post alerts and activity as it's happening within the school. Alerts are sent via text messages and email. Cambridge shares this alert notification and video with local police, creating a coordinated effort between first responders and the school.

In addition to the detectors, several cameras were set up to increase perimeter security. The cameras were installed inside building one and outside of the school's four buildings; they are used to monitor driveways in and out of the school, ingress and egress points, basketball courts and the general playgrounds.

Compared to other microphones, Gibson described Louroe's microphones as aesthetically pleasing and non-threatening. In fact, he believed that most people would not recognize the Verifact® A as a microphone.

One of the primary benefits of the Aggression and Gunshot Detectors is the ability for staff at Cambridge to proactively detect and prevent crime on campus.

"The precursor to a lot of bad behavior tends to be acoustic in nature," Gibson stated.

Gibson explained that the compelling reason for including audio into a surveillance system is that it delivers early warning detection that video alone cannot provide.





# Transportation: Value Audio

The world of transportation moves faster than ever before. When we discuss monitoring for secure environments in the context of transit, we need to expand the conversation on technology, opening our minds to all practical tools. We must progressively think and speak about capturing sound, giving audio monitoring its due, with the appropriate amount of attention as is deserving of a key sensory technology.

Today, both audio and video should be valued for their unique contribution, and their interoperability, yet the present reality is that generally industry remains primarily focused on video systems. There are too many captured incidents that have affected our transit system's dedication to zero incident and with the right technology, some of these incidents can be prevented. On December 2013, in the Bronx borough of New York: The operator of a Metro-North commuter train, traveling approximately three times the posted speed limit "zoned out" while approaching a dangerous turn. Four people were killed and more than 70 injured. The aftermath has created public outcry for more monitoring on our transportation systems. Recommendations from both Senators Charles Schumer of New York and Richard Blumenthal of Connecticut directed the transit operators to install video and audio monitoring systems on all passenger trains. Using a network based two-way audio system along with video, transportation staff can:

- > Remotely interact with transportation employees or commuters in real time and monitor multiple zones, giving them auditory 'triggers' to focus on, allowing them to better identify situations in progress and quickly respond with verbal warnings or directions.

Audio monitoring assists in capturing a cause for alarm. It provides:

- > Secondary verification in the case that a primary video system is triggered to an emergency, security threat or other 'out of ordinary' situation. The security monitor can hear and then focus on the monitor that sees what is going on when audio is integrated into a full security system's capability. The system operator can verify to the first responders that two sense points were triggered in the same situation.

- > Heightened activity sending an alarm can be activated based on audio feed captured by audio monitoring products.

A verified situation provides real-time confirmation of an incident via visual or audio monitoring and notifies of attempted unauthorized activity. This technology contributes to:

- > Reduced call-out to responders with information that values time, focus, and resources.
- > Reassuring transportation monitoring centers, that their assets are safe and secure.

Audio also helps strengthen vandal prevention, provide employee training, conduct day-to-day business and much more. For example, a regional transportation depot uses audio to monitor and verify activity in critical locations to increase security and productivity and to focus manpower attention. Recommendation: Offer this notion when discussing the conceptual design at the project table. More and more major public and private entities have utilized the power of audio for their security needs. Include audio as part of a total, integral part of the overall security solution.





# Law Enforcement: Chicago Police Department

The Chicago Police Department (PD) realized its six-year-old analog security technology was outdated and no longer met the security needs of the department.

## NEED

The city of Chicago, Illinois has a residential population over 2.7 million, while the Chicago Police Department (Chicago PD) has a total of 12,244 sworn officers. With the city's dense population and high crime rate, there's always the possibility that the department could see an influx of suspects disproportionate to the number of officers on hand. To proactively prepare for operational challenges like this, the police department moved to upgrade its overall security system as well as its recording equipment for the interrogation rooms.

## SOLUTION

Chicago PD turned to TASER International, a company that specializes in manufacturing and distributing public safety technologies, to recommend a solution. The department specifically worked with Miles Cowan, principal product manager at TASER, for the project. TASER provided the police department with Louroe Electronics' AOPIFPX, a microphone and speaker hybrid, to be installed in the corners of their interview and line up rooms. Apart from obtaining crystal clear audio, this technology offers the ability to mute a conversation without discontinuing the recording timeline. The solution ensures privacy when necessary and is easy to use, making it ideal for the department.

## RESULTS

By installing Louroe's technology, Chicago PD has been able to enjoy a high-quality, comprehensive and practical recording system that preserves spoken evidence, while protecting the rights of all those involved. Through the muting feature of the audio equipment, attorneys are able to meet with their clients without having to be relocated to another area, which ultimately increases operational efficiency.

The primary advantage of this microphone/speaker combo is that it can be muted for interviews that have attorney-client privilege. Moreover, the speaker emits a sound every 30 seconds to assure those within range that they are not being recorded and their conversation is confidential. Another benefit of the audio solution is

that when the mute function is engaged, the recording timeline continues to tick making sure the documented audio remains as one continuous recorded session. As a result, evidence is easier to access and analyze.

According to Cowan, "this particular [hardware] piece is something we want to stay with and continue to use Louroe [for] based on service and product quality."

Cowan also emphasized that having a reliable, quality recording system is crucial to any case because "making sure the jury can hear what is being said is a very important part, probably just as important, if not more important, than the video itself."

Overall, Louroe's AOPIFPX exceeded Chicago PD's expectations in terms of quality and consistency. A recording device of this caliber, coupled with Louroe's attentive and efficient customer service, has given the department great confidence when securing auditory evidence.

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"This particular [hardware] piece is something we want to stay with and continue to use Louroe [for] based on service and product quality."

Miles Cowan, principal product manager at TASER International





# Wiring Requirements

## Wiring (Not Supplied) For Louroe Electronics Products

### 4 Conductor

- 2 Conductor shielded, 20 gauge with 22 gauge drain (microphone connection)
- 2 Conductor unshielded, 18 gauge (speaker connection)

### Applicable To Models

- ASK-4®kit #500 Series
- AP-1TB
- AP-4TB
- AP-8TB
- AP-16TB
- DG-12II
- D25III
- MLA-4
- MLA-8
- TLI
- TLI-CF
- TLI-CS
- TLI-VR-F
- TLI-VR-SQ
- TLM-W
- TLMC-W
- TLM-CS
- TLM-E
- TLO
- TLO-NM
- TLSP-F
- TLSP-S
- TLSP-PB-WF
- TLSP-PB-WS
- TLSP-CM



### 3 Conductor

- 3 Conductor shielded, 20 gauge with 22 gauge drain

### Applicable To Models

- AOP-SP-CF
- AOP-SP CS
- AOP-SP-PB
- AOP-SP-W
- AOP-SP70
- AOP530
- IPS614
- DCSM-12V
- IF-PX



### 2 Conductor

- 2 Conductor shielded, 22 gauge with 24 gauge drain

### Applicable To Models

- APR-1
- AP-2
- AP-4
- AP-8
- ASK-4®kit #100 Series
- ASK-4®kit #300 Series
- ASK-4®kit #400 Series
- ASK-4®kit #600 Series
- DA-4
- DCS
- DCS-1
- IF-1
- IF-2
- IF-4
- IF-8
- MLA-4
- MLA-8
- MS-1
- MS-2-REC
- RN-2
- Verifact® A
- Verifact® B
- Verifact® C
- Verifact® D
- Verifact® D-V
- Verifact® E
- Verifact® K
- Verifact® L-DT



### 2 Separate Cables

#### 2 Conductor

- 2 Conductor shielded, 22 gauge with 24 gauge drain

### Applicable To Models

- RCS-2-12V



#### 3 Conductor

- 3 Conductor unshielded, 18 gauge

### Applicable To Models

- TLMC-12V
- TLSP-PB-12V
- RCS-2-12V



### Twisted Pair

- 20 Gauge

### Applicable To Models

- DCS-12V



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# Abbreviated Audio Oriented Glossary

## A

**ACOUSTICS** A study of sound and its interaction with the human hearing mechanism.

**ALTERNATING CURRENT (Abbr. AC)** An electric current which periodically reverses its direction, as opposed to direct current, which maintains a single direction.

**AMPERE** The unit of electrical current flow.

**AMPLIFIER (Abbr. Amp)** A device for increasing the amplitude of the voltage, current, impedance, or power of an electrical signal.

**AMPLITUDE** The strength of a signal or sound, without regard to its frequency content. Amplitude measurements of audio signals generally refer to signal voltage rather than power, which is proportional to the voltage squared.

**ATTENUATE** To weaken or reduce the intensity of a signal or noise. Usually measured in decibels (dB).

**AUDIO FREQUENCY** A frequency between 20 Hz and 20,000 Hz, within the range of normally audible sound.

**AUTOMATIC GAIN CONTROL (Abbr. AGC)** The effect of a circuit which maintains an output signal at a constant average amplitude despite changes in the amplitude of the input.

## B

**BANDWIDTH** The range between the highest and lowest frequencies of a transmission channel. Measured in Hertz (Hz).

**BI-DIRECTIONAL MICROPHONE** A microphone with audio pick-up from the front and rear, with sound attenuation on the sides of the unit. Also known as a "figure 8" microphone.

## C

**CARDIOID** The shape of the sensitivity vs. direction plot for a particular style of directional microphone. A cardioid mic rejects sound arriving from the rear.

**CONDENSER MICROPHONE** A microphone sensitive to sound pressure variations. It has an extremely high output impedance and must be placed very close to a preamplifier to avoid loss of a signal.

## D

**DECIBEL (Abbr. dB)** A unit indicating a ratio between two values (voltages, currents or powers). The number of decibels is defined as the common logarithm of the ratio of two powers. Two to three decibels is usually the smallest change in sound level that can be detected by the human ear.

**DIRECT CURRENT (DC)** An electrical current in which the negative charges (electrons) flow in one direction only, from negative to positive.

**DYNAMIC MICROPHONE** Consists of a diaphragm with a coil of wire attached to it such that sound pressure moving the diaphragm causes the coil to move in a magnetic field supplied by a permanent magnetic. The motion of the coil causes an electric current to be induced, producing the signal output of the microphone.

## E

**ELECTRET CONDENSER MICROPHONE** A type of condenser microphone that does not require a polarizing voltage. It contains a capacitor-like device, an electret which has a permanent electric charge. The audio pick up pattern is omni-directional.

## F

**FEEDBACK (ACOUSTIC, LARSEN EFFECT)** A loop that exists between an input and an output (Positive Feedback or Negative Feedback). The most encountered type of acoustic feedback is positive feedback. This scenario is characterized by amplified sound (via a speaker) entering the input (microphone), thereby causing the previously amplified sound to make repeated trips around the loop, resulting in a steady howl or squeal. This is usually corrected by reducing the volume control setting, increasing the distance or changing the position of the speaker and/or microphone, or simply isolating the speaker and microphone from one another.

**FILTER** A circuit designed to attenuate or eliminate selected frequencies.

**FREQUENCY** The number of repetitions per second of any cyclical phenomena. Frequency is measured in Hertz, and abbreviated as Hz. A sound source such as a tuning fork, which vibrates back and forth 1000 times per second, does so at a frequency of 1000 Hz (1 kHz).

**FREQUENCY RESPONSE** The way in which an electronic devices, such as microphones and speakers, respond to signals of varying frequency. Frequency response is defined to be a characteristic of a system or a device, not a characteristic of a signal.

# Abbreviated Audio Oriented Glossary

## G

**GAIN** A measure of amplification. The ratio of output voltage to input voltage.

**GROUND** The electrically common or neutral parts of an electronic or electrical device, usually at chassis potential. Ground is referred to as "common."

## H

**HARMONIC DISTORTION** Distortion caused by nonlinear characteristics of electronic devices that generate harmonics of the input frequencies.

**HERTZ (Abbr. Hz)** The number of cycles of repetitive change which a sound wave or electrical signal undergoes in one second. Named after Heinrich Hertz, a German Physicist who first produced and received radio waves.

**HUM** A continuous, spurious noise at the frequency of, (or at twice the frequency of), the local AC line supply. In the United States hum occurs at 60 Hz or 120 Hz. In Europe, it occurs at 50 Hz or 100 Hz.

## I

**IMPEDANCE** The opposition of a circuit to the flow of AC. A function of in-circuit DC resistance and reactance. Impedance is measured in ohms and is symbolized by the letter 'Z'.

**INPUT** The port or receptacle through which that signal is fed into the device.

## J

**JACK** A socket (female connector) which serves as a receptacle for the plug (male connector) on the end of an audio cable.

## K

**KILO (Abbr. k)** A prefix preceding a unit that multiplies that unit by 1000. Example: 1 kHz is  $1 \times 10^3$  Hz.

## L

**LINE AMPLIFIER** An amplifier that boosts the strength of a signal in a transmission line.

**LINE LEVEL** A standard signal voltage for line transmission of data. Professional audio is often +4dBu. Consumer audio is often -10dBV

**LOW-IMPEDANCE** A device having a nominal impedance of 600  $\Omega$  or less.

## M

**MATCHING TRANSFORMER** A device that matches the impedance of one circuit to that of another.

**MICROPHONE** A transducing device that converts sound waves into audio signals.

**MILLIAMPERE (Abbr. mA)** One thousandth ( $1 \times 10^{-3}$ ) of an ampere.

**MIXER** A device for combining and individually controlling two or more audio signals.

**MOTORBOATING** Low-frequency oscillation of an active device, producing a continuous, rapid sound.

## O

**OHM (Abbr.  $\Omega$ )** The unit of electrical resistance, reactance or impedance.

**OMNI-DIRECTIONAL** Describes the uniform propagation or reception (e.g., an omni-directional microphone) of energy in all directions.

**OUTPUT** A connection interface in which signals are fed out of an electronic device.

**OUTPUT IMPEDANCE** The electrical impedance between the conductors of a device's output.

## P

**POTENTIOMETER** A variable resistor, usually controlled by a rotary knob, and used as a volume control or tone control on an audio device.

**POWER AMPLIFIER** An active amplifying device whose primary function is to deliver output power.

**POWER SUPPLY** A device or circuit that provides the voltage and current required for the operation of an electrical device.

**POWER TRANSFORMER** A transformer that draws energy from an AC line to feed a power supply.

**PREAMPLIFIER** A device which provides amplification to raise a low-level signal (mic level) to a line level signal.



# Abbreviated Audio Oriented Glossary

## R

**RCA CONNECTOR** An industry standard audio connector (jack/plug). The input/output terminals on many preamplifiers utilize RCA jack configuration. Original design by Radio Corporation of America.

**RESISTANCE** The opposition to the flow of DC through a circuit.

## S

**SENSITIVITY** A measure of the amount of input signal a device requires in order to produce a standard output level.

**SHIELD** An electrically conductive sheath or cage, used to confine or to isolate equipment from interfering electro-magnetic signals.

**SHOCK MOUNT** A flexible mounting device used for subduing or eliminating the transfer of mechanical vibrations to a microphone.

**SIGNAL** Any series of electrical impulses or electromagnetic waves that represent information.

**SOUND PRESSURE LEVEL (Abbr. SPL)** The standard measurement of loudness of a sound. Expressed in decibels (dB) relative to the threshold of human hearing.

**SYSTEM** A collection of devices which work together to produce a desired result.

## T

**THRESHOLD** The intensity level at which a phenomenon starts to occur or ceases occurring.

**TRANSFORMER** Two or more electrically isolated but magnetically coupled coils, sharing a common core or axis, and usually used to change the magnitude of an AC signal.

**TRANSISTOR** A solid state active device capable of signal amplification.

**TRANSMISSION LINE** A long interconnecting cable, usually terminated by a load equal to its characteristic impedance.

## U

**UNBALANCED (i.e. NOT BALANCED)** Signal carried between ground and a single "hot" conductor.

**UNIDIRECTIONAL** A microphone pattern that is more sensitive to sounds coming from one particular direction than those coming from other directions. Sometimes referred to as a directional microphone.

## V

**VAC** Abbreviation for volts of alternating current.

**VOLT (Abbr. V)** A unit of electrical force.

**VOLTAGE** The magnitude of an electromotive force. Expressed in volts.

## W

**WATT** A unit of electrical power.

**WATTAGE** The measure of the power consumed by an electronic device.

## Z

**Z** The symbol for impedance.

**ZONE** Pertaining to an area of coverage (microphone placement) within an audio monitoring system.

# Warranty And Purchasing

## Warranty:

All products manufactured by LOUROE ELECTRONICS are warranted to the original industrial or commercial purchaser to be free from defects in material and workmanship in accordance with the terms published in our Terms and Conditions of Sale.

For a full description of our Terms and Conditions of Sale, Please go to our Website at [www.louroe.com](http://www.louroe.com)

LOUROE provides a two year limited warranty on all equipment in our product line. There will be no charge for parts and labor for any repair or replacement of equipment. Incoming shipping cost always borne by the returnee.

## Warranty Duration:

This warranty shall terminate at the time the product is (a) damaged or not maintained as reasonable and necessary, (b) modified, (c) improperly installed, (d) repaired by someone other than warrantor for a defect or malfunction, (e) serial number is removed.

## Payment Terms:

Net 30 days on approved credit. Check or credit card (VISA or MASTERCARD) for all accounts meeting the purchasing requirements and for repairs.

## Returns:

1. All merchandise being returned to our factory must have a Return Merchandise Authorization (RMA) number. Please contact your distributor or visit [www.louroe.com/support/rma](http://www.louroe.com/support/rma) to receive a RMA number. A reason for the return and a serial number must be provided.
2. Requests to return merchandise must be made within 15 days from the date of invoice in order to avoid restocking fees. Return requests made after 15 days of invoice date are subject to applicable restocking fees.
3. Request for return of merchandise past 12 months of invoice date, or for custom manufactured (made to order) products will not be honored unless for warranty repairs.

## Shipping:

Incoterms EXW Van Nuys, California, USA. Merchandise shipped UPS or Fedex Ground, unless otherwise specified.

Seller reserves the right to apply a 10% expedite fee to the price of expedited product in order to meet said firm ship date.

A fee of \$10 will be charged for all orders being drop shipped to a location other than the Customer's warehouse or Customer's branch.

## Important Notice To Customer:

All statements, technical information and recommendations contained in this catalog are based on information believed to be reliable. However, the accuracy or completeness thereof is not guaranteed. Before utilizing any product, the Customer should determine the suitability of the product for its intended use. The Customer assumes all responsibility for and shall bear all liabilities and expenses relating to the installation and monitoring of the product(s). The Customer shall not hold LOUROE responsible for any liability, loss, cost, expenses or damages however caused by reason of any product(s), whether or not defective, or any act or omission of LOUROE where Customer or any third party fails to properly install and/or monitor the equipment. LOUROE does not represent that its products may not be compromised or circumvented; that the products will prevent any loss from burglary hold-up, fraud or bodily injury or otherwise; or that the product will in all cases provide the protection for which it is installed or intended. Buyer acknowledges that LOUROE is not an insurer and assumes no risks for loss or damages or the cost of any inconvenience, transportation damage, misuse, accident or similar incident. LOUROE further assumes no responsibility for false alarms from its sound activated Audio Monitoring Systems by the customer's inherent acoustical or environmental interferences from air handling ducts, helicopter ascend/descend, nearby railroads, street noise, transportation routes, etc.

When LOUROE products are used as part of an audio monitoring system, Louroe recommends that the public be given notice of audio monitoring on the premises. A decal is provided and is recommended that it be posted in a visible location (entrance and exit) of both private and public buildings.

Prices and specifications subject to change without notice.

# Our Technical Support

## Our Added Value



### Experts Available For:

- > Pre Sales questions
- > Technical design questions
- > Suggested system design(s)
- > Trouble shooting assistance
- > A bilingual team: English and Spanish

Check us out on social media for news and installation videos



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**www.louroe.com**



### RMA Process:

For any returns/repairs go on  
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and fill out the RMA form





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