



iSEMcon<sup>®</sup>

ACOUSTIC & VIBRATION DIVISION

iSEM**Mic**

series microphones &  
accessories

„ONE MIC SERVES ALL“

Calibration data

[my.isemic.com](http://my.isemic.com)

## CALIBRATION DATA

Human readable ASCII file: 1/6 octave

www.iSEMcon.com freefield

Sensitivity 2.85 mV/Pa @1kHz

10.00 -0.02

11.26 0.10

.....

19992.19 0.93

^ frequency (Hz) ^amplitude response  
(dB)

**Visit**

**my.iSEMic.com**

**for further information and calibration  
file download**

welcome to

my.isemcon.com

*This is your microphone service page.*

REQUEST A CALIBRATION FILE



## **iSEMic microphones (s) at A GLANCE**

The new ¼" iSEMic Microphone and Accessories Series is supply and signal voltage compatibility to iPhone\*1, iPad\*1 as well as other mobile devices including laptop computers and Phantom Powered Pro Audio Equipment. The superb functionality is provided by the space saving microphone built-in electronics.

The advantages of the new iSEMic microphone series are obvious. Mobile devices like iPad's and iPhone's are more and more used for controlling live sound mixers and PA Systems giving the FOH and system engineers the possibility of walking the venue while optimizing for sound and acoustics using special apps on mobile devices.

Back at the FOH place the same microphone can be used to service the PC or MAC computer by the use of an off-the-shelf USB interface and XLR cable.

With its mechanically robust design it is well suited for harsh environment use such as open air sound reinforcement measurements.

Its class 2 frequency response 1 makes it predestined for room acoustics analysis including recording studios and home theaters. It can normally be used without the included freefield calibration data file for compensation. In this case take the individual calibration data as proof of its superb performance.

## FEATURES

- **Excitation voltage 2.5V to 52Vdc** , current limited
- Powers from: **iPhone, iPad, other mobile devices, laptop computers, Phantom Power, ICP/IEPE power.**
- Frequency range **20Hz...>20kHz**
- **IEC 61672 class 2** frequency response **Standard (125dBspl)** and **High-SPL (>135dB)** version
- **Extended temp (+95°C/200°F)** range and/or **IP54 (watertight)** option upon request
- **Surge voltage protection**
- **Calibration** chart and calibration data files included
- **Stainless steel** body, **Gold plated** connectors
- Microphone body dia. **1/4" (7 mm)**

- Microphone length 3,7" (94 mm)



## **TYPICAL APPLICATIONS**

- Sound-power and sound-field analysis
- Industrial Acoustics
- Room acoustics analysis
- Sound reinforcement
- Real time analyzers

# SPECIFICATIONS

*values for 23°Celsius*

## PERFORMANCE

Frequency Response Characteristic	Free-Field
Polarization Voltage	Prepolarized
Nominal Sensitivity @1kHz	3mV/Pa
Sensitivity Temperature Drift	<0.015dB/K typ
Microphone Polarity	Non-Inverting
Frequency Response calibrated	10...20.000 Hz
Frequency Response IEC61672 *1	class 2
Inherent Noise100-10000 Hz	<30dB typ.
Max. SPL. (3% distortion limit)	> 125dBspl

## ELECTRICAL

Output Impedance	< 200 $\Omega$
Supply voltage (BIAS, PHANTOM, IEPE)	2.5...52Vdc



## ENVIRONMENTAL

Operating Temperature	-10...+55°
Storage Temperature Range	-20...+90°
Operating Humidity Range	0...90%r.H.
Axial Vibration Sensitivity	~ 50dB

## PHYSICAL

Housing Material	Stainless Steel
Output Connector	SMB
Dimensions	Ø ¼" (7mm) x 3.7" (94mm)
Weight	0.3 oz (10g)

## CONFORMITY

IEC 61000-6-1;

## SPECIAL FUNCTIONALITY

Voltage Surge Protection	✓
EMC Noise Filter	✓

# PRODUCT OVERVIEW

Base kit + additional Phantom Power Adapter



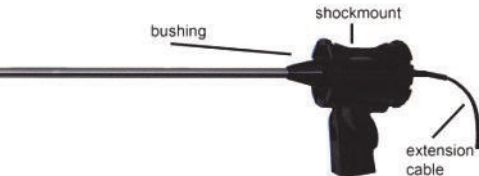
special accessory — extension rod



accessories: cables, holding clamp, shockmount, adapters



more... [www.iSEMcon.com](http://www.iSEMcon.com)



## PRODUCT OVERVIEW

Base kit + additional  
Phantom Power Adapter



## Accessories:



more... [www.iSEMcon.com](http://www.iSEMcon.com)

# ORDERING INFORMATION

Item	Name
480001	iSEMic 725TR base kit, 725TR microphone, SA-iBF adapter for iPhone/iPad, windscreen, brochure, individual calibration data (freefield&diffusefield) download from my.isemic.com at no cost, metal box.
400001	iSEMic 725TR
460001	SA-iBF adapter
460002	SA-SBF adapter
460003	SA-XBF adapter
460004	SA-CBF adapter
460010	SA-BFM500 extension rod
470012	CX-P48/BF
470022	CX-BFBM
470032	CX-TRSBF
222020	MH-CH19
222050	MH-SH19
220023	Microphone bushing MH-07D/iSEMic-CA
240030	WS-7XL windscreen
230300	CA-1/4/2 : 1/4" to 1/2" insertion adapter

# APPLICATION NOTES

## FREEFIELD vs. DIFFUSEFIELD USE

Only a small percentage of all acoustical measurements are performed in a well defined and/or well controlled environment of an e.g. acoustical laboratory – on the contrary most acoustical measurements are done under not really controlled conditions. Here are some hints on how to use our microphone.

### **Sound Fields:**

Free field: There are no reflecting objects, only the microphone disturbs the sound field.

Diffuse field: There are many reflecting surfaces or sound sources so that the sound waves arrive from all directions.

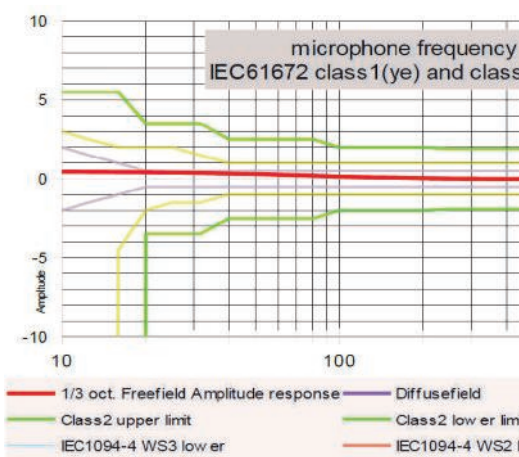
Pressure field: This is found in small confined spaces like sound calibrators.

Depending on the nature of the sound field an appropriate microphone, which is optimized for the sound field could be selected. Unfortunately there are many practical situations where the sound field is not really of a well defined type. This application note should give you an idea on how to measure with a free field response microphone.

The free field microphone is the most common in use, chosen on tradition but we should know about the sound field.

The following picture shows both the free field and the diffuse field response of a free field microphone.

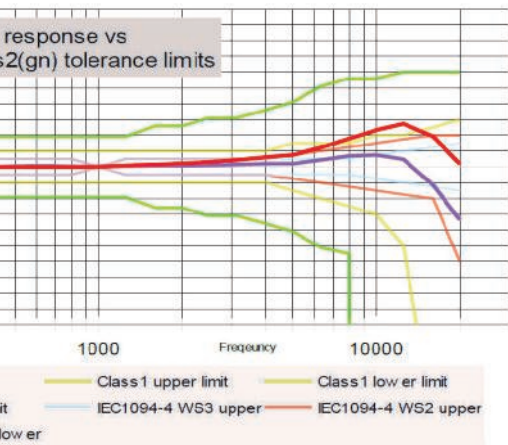
The diffuse field response is not easy to measure, because it is not easy to generate a truly diffuse sound field over a wide frequency range but there is a





procedure to estimate the diffuse field frequency behavior of a free field microphone.

From literature we know, that a microphone's random (diffuse) incidence



response can be approximated by measuring the 90 deg incidence response relative to a single sound source.

While it is an approximation only iSEM-con has measured the 90deg response of many iSEMic microphones and used the averaged data to evaluate a 5<sup>th</sup> order polynomial. This is now used to derive the “diffuse field” response from the microphones free field response data.

### **Typical freefield measurement:**

Speaker measurement. The microphone should target to the sound source (speaker).



## **Typical diffusefield measurements:**

Concert SPL monitoring (normally at FOH), Room Acoustics measurement (RT60): the microphone should not target to the sound source. Let it target to the ceiling. This is the most practical way.



## **MAINTENANCE**

This microphone is a maintenance free product but could require a recalibration in case of a mechanical impact or perodical temperature cycling/use at the min and max working temeperature.

In an unlikely event of equipment failure, please contact your local iSEMcon representative or the iSEMcon factory located in Germany ([sales@iSEMcon.com](mailto:sales@iSEMcon.com)). Unauthorised dismantling of the microphone will invalidate the warranty.

## **ELECTRONIC WASTE**

This electronic device should be disposed separately from your household waste at the end of its lifetime. There are various collection systems for



recycling in the European Union. For further information please contact your local authority or retailer where you have purchased the product.

## INSTALLATION



**ATTENTION**

The iSEMic microphone should not be plugged or unplugged into a mixer console or PA system unless the input channel is muted. If the system does not have a muting option the volume should be turned off. This avoids loud popping noise that can cause damage in speakers and/or affect your hearing.

## LIMITED WARRANTY

iSEMcon, Germany provides limited warranty for the original iSEMcon product purchased. If you wish to make a warranty claim for your product, take it to the retailer from which you have purchased the product or contact iSEMcon Germany ([sales@iSEMcon.com](mailto:sales@iSEMcon.com)) In accordance with the terms of this limited warranty, iSEMcon guarantees that this product at the time of initial purchase is free of material and manufacturing defects. This guarantee is valid for two (2) years from the date of purchase of a new, unused product by the original end user. As proof of purchase by all means please keep your receipt of purchase. The date of purchase and the name of the product have to be indicated on the receipt. Without this proof, which will be checked by iSEMcon, no claims may be put forward. iSEMcon and its partners reserve the right to charge a processing fee if this product in accordance with the

warranty terms fails to meet the warranty criteria.

The warranty undertaking consists at the option of iSEMcon of the elimination free of charge of material and manufacturing defects through repair, exchange of parts or replacement of the entire product. If iSEMcon repairs the product, exchanges parts or replaces the product, then the warranty claim for the defect in question or the replaced product is valid for the remaining duration of the original warranty period or for ninety (90) days from the date of repair, whichever is longer. The repair or replacement claims may be filled with functionally equivalent, reconditioned products if the purchased product is no longer available. The replaced parts or components becomes property of iSEMcon. This warranty claim is void if the product has been tampered with by unauthorised persons or workshops. This limited warranty is valid worldwide in all countries in which in each respective case the

national laws do not conflict with these warranty terms. Other or broader claims than those set forth here may not be asserted on the basis of this limited warranty. At the same time, you as an end user may in your country have legal claims which are not limited by this limited warranty. The limited warranty limits neither your legal rights nor the rights arisen from the purchase contract between you and the retailer.

**Excluded from this limited warranty are:**

- Minor defects or irregularities in the condition of the product which are insignificant as far as the quality and intended use of the product are concerned.
- Rechargeable and non re-chargeable batteries.
- Defects which have occurred through improper use or misuse of the product



including faulty operation, mechanical damage and applying incorrect operating voltage.

- Defects in the product resulting from or in connection with modifications made to the product without prior agreement and written statement .
- Defects in the product resulting from force majeure.
- Defects in the product of which you were already aware of at the time of purchase.
- Defects in the product caused by the use of accessory components or peripheral devices which are not among the original accessories supplied by iSEMcon.

THERE EXISTS NO EXPRESS WARRANTY, REGARDLESS OF WHETHER THEY ARE WRITTEN OR VERBAL, BEYOND THIS PRINTED VERSION. ALL IMPLIED WARRANTIES ARE ONLY VALID FOR THE DURATION OF THIS LIMITED WARRANTY ISEMCON IS, TO THE EXTENT THAT

AN EXCLUSION OF LIABILITY IS PERMITTED, IN NO INSTANCE LIABLE FOR INDIRECT OR CONSEQUENTIAL DAMAGES OF WHATEVER KIND, INCLUDING--BUT NOT RESTRICTED TO--LOST PROFITS AND ECONOMIC DISADVANTAGES.

In some countries/states the exclusion or limiting of indirect or consequential damages or the limiting of the duration of warranty is not allowed. In this case the previously mentioned limitations and exclusions do not apply to you.

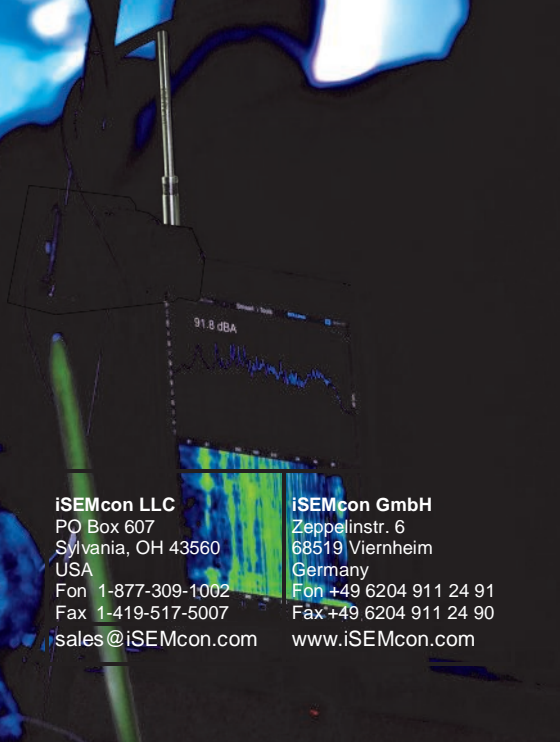
## **Safety clause and unauthorized applications**



Products manufactured and/or sold (herinafter products) by iSEMcon GmbH and/or iSEMcon LLC, (hereinafter iSEMcon) are not designed for use as a component in any life support,

safety, or other comparable application. Our products should not be used in any application where the failure or faulty performance of the product might create a risk of personal injury or death. Buyer assumes all risk of loss, damage or injury alleged to arise from the failure or faulty performance of an iSEMcon product in any unauthorized application.

Buyer agrees to indemnify and hold harmless iSEMcon, and its directors, employees, agents, representatives and sales partners, from and against any and all claims, costs, damages, losses and expenses including attorney fees which arise from or are alleged to have been caused by any claim for personal injury or death connected with buyer's use of an iSEMcon product in any unauthorized application, including claims which allege that iSEMcom has been negligent in connection with the design or manufacture of the product.



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