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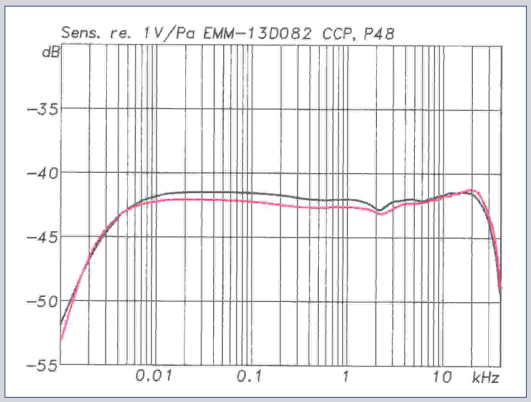
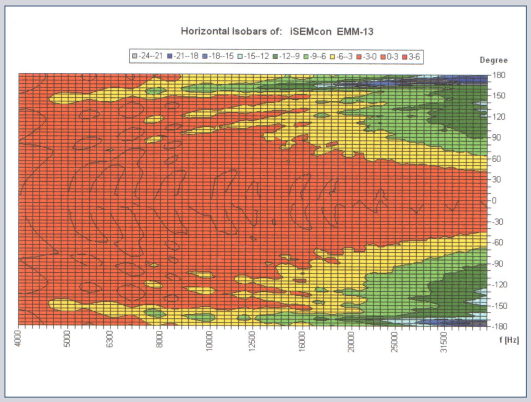
ISEMcon EMM-13D082

Das EMM-13D082 ist eine hochinteressante Neuerscheinung des noch jungen Unternehmens ISEMcon. Die Firmenbezeichnung steht für Industrial Sensors, Measurement and Consulting. Die Abteilung Akustik wurde aus der ehemaligen Firma IBF-Akustik gegründet. Das Mikrofon ist in einem eleganten, poliertem Edelstahlgehäuse untergebracht. Es ist 1/2" groß und kommt in zwei Versionen: Eine mit 4mA Konstantstromversorgung und der kryptischen Bezeichnung EMM-13D082/H-CCP/T und eine zweite mit Phantomspeisung (H-P48/RM), dessen Elektronik sich von der ersten,



Empfindlichkeiten auf Achse zweier EMM13D082/H



Isobaren 4 kHz bis 40 kHz eines EMM13D082

The EMM-13D082 is an exciting new microphone from the emerging startup company iSEMcon (Industrial Sensors, Measurement and Consulting). iSEMcon's acoustic division has been established from the former company IBF-Akustik.

The EMM-13D082 is a relatively short microphone contained in an elegant polished stainless steel housing, having a slim acoustic frontend and a 1/2" body and comes in 2 versions: one having a 4mA constant current power capability and the cryptic name EMM-13D082/H-CCP/T and a second one being powered from Phantom Power and having a miniXLR connector (H-P48/RM) with an electronics build-in that only differs from the first in one point: the use of an internal level converter. The rest of the electrical behavior is the same as reported from the manufacturer and being approved by our own measurements.

Both versions can be supplied from a wide supply voltage range and what is amazing is the CCP-version can also be supplied using phantom power – so it is supplied with a commercially available XLR to BNC adapter having PIN 2 connected to the microphone and PIN 3 shortened to ground. Apart from the fact, that such a configuration can bring a low power phantom source into a tight spot (while the shortened PIN 3 draws the maximal available current through the 6.8 kOhm resistor), it's really functioning without limitations and we have performed all our measurements in this configuration.

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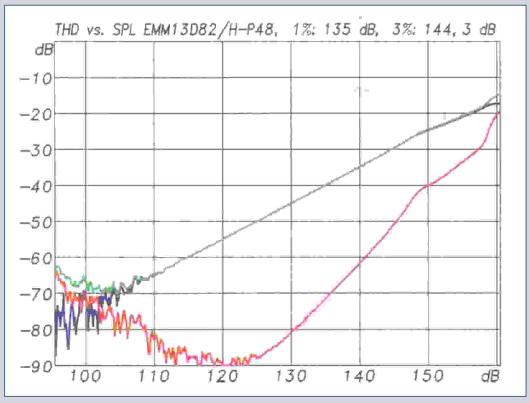
The frequency response measurement of both exemplars shows a well-balanced characteristic from 10Hz to 20kHz having a slight bathtub curved roll-off of about 1dB in the midrange. The dint at 2kHz is a result of the measurement setup and the closeness of the microphone stand due to the very short microphone size. This disturbant effect can also be seen as interference in the isobars diagram. The manufacturer says that the EMM-13D082 is not predestined for use with a microphone stand due to its light weight and compact size. It should be suspended from the ceiling by the use of a microphone cable.

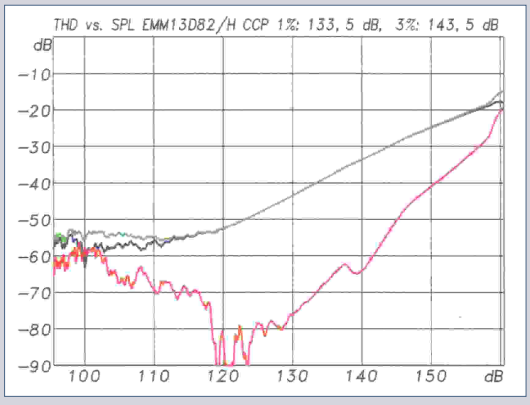
For the standard floor stand use, the manufacturer sells the longer version EMX-7150 having the same capsule with electronics built-in and being extensively tested in the next issue. While being very exciting in the THD vs SPL results in fact of the adaptation of P48 from ICP we had real fun. Both versions of those compact gems are made from a sophisticated electronics. The CCP- and P48-version supplying output voltages up to the saturation voltage level of conventional used operational amplifiers and being very low noise. This results in an enormous 118dB(A) dynamic range from a careful selected electret capsule.

Very interesting is also the microphone sensitivity of about 8mV/Pa of the high level approved and tested H-Version (there is also an S-versions available with a much higher sensitivity) which is chosen to be low.

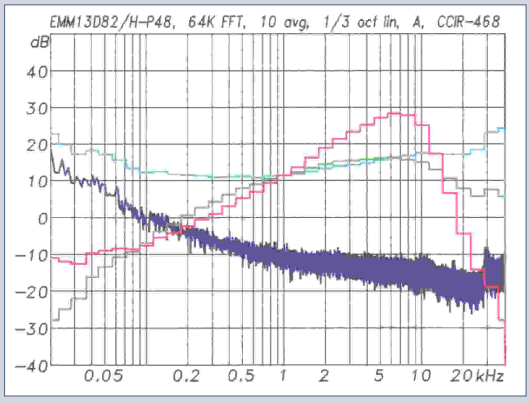
baren Nähe zum Stativ ... sonders ... baren ... flexio- ... Das ... h gar ... desti- ... heit ... ders ... ige- ... pi- ... as ... nd ... s ... h ... auf ... l in ... tte ... ze ... al- ... ar ... n ... s ... n ... stellt das /H Typenbezeichnung, es gibt auch die ... ersion mit deutlich höherer Empfind- ... eit) relativ gering gewählt wurde. Da ... ektronik auf der anderen Seite deftige Pegel abgeben kann, erreicht sie erst weit jenseits der 3 %-THD-Grenze, nämlich bei dadurch bedingten unmittel-



k_2, k_3 und THD (blau/rot/grün) des EMM13D082/H P48 vs. Schalldruckpegel



k_2, k_3 und THD (blau/rot/grün) des EMM13D082/H CCP vs. Schalldruckpegel



Äquivalentes Rauschen eines EMM13D082/H: FFT sowie Terzpegel un-, A-, und ITU-R 468 RMS bewertet (blau/grün/rot)

156 dB SPL, ihre Clip-Grenze, wie aus dem THD vs. Level Plot ersichtlich ist (gezeigt ist hier der Verlauf für die P48-Version

On the other hand, the electronics supply "crisp" output levels and electrically clips far above the 3% THD limit at exactly 156dBspl, as shown in the THD vs Level Plot (the P48 Version shown which is very close to the CCP Version). At these levels the capsule itself distorts about 10%. We can say the preamplifier can handle microphone capsule signals of about 130dB without any clipping and is sensational at that price point. It is all the more surprising that the total power consumption is as low as 4 to 5mA.

Before we continue with the question of pricing, we need to take a look at the additional features: The CCP/T version comes with a TEDS-Chip (data ROM) having the individually stored calibration data stored in (as per IEC 1451.4), so far known only in more expensive measurement microphones. In addition to this, both versions are coming with individual calibration data on CD. The P48/RM version is also supplied with a 5m mini-XLR to XLR cable.

IEC 1451.4 hinterlegt sind. Zusätzlich gibt es diese bei beiden Versionen

And pricing? Both versions retail under EUR 200.00! There is not another manufacturer that can beat this price!

Original German text und measurements: Swen Mueller. Photos: Dieter Stork, Swen Mueller.

Translation: Wolfgang Frank, CEO iSEMcon GmbH / Win Otto, iSEMcon LLC

kann ...

◆ **Text und Messungen: Swen Müller**
Fotos: Dieter Stork, Swen Müller (1)

ISEMcon EMM-13D082 / H-CCP/T

Kopfdurchmesser [mm]	7
Länge [mm]	84
Polarität	(+)
Empfindlichkeit [mV/Pa]	7.9
Polar: −3dB @10 kHz [°]	300
Polar: −3dB @20 kHz [°]	140
SPL @ 1 % THD [dB]	133,5
SPL @ 3 % THD [dB]	143,5
Clip-Spannung [V]	13
Noise SPL lin [dB]	31,1
Noise SPL A [dB(A)]	26
Noise SPL ITU-RMS [dB]	34,9
Dynamikumfang [dB(A)]	117,5
Stromverbrauch [mA]	4
Anschluss/Versorgung	BNC/4 mA
Preis (UVP)	191,66 Euro

ISEMcon EMM-13D082/ H-P48/RM

Kopfdurchmesser [mm]	7
Länge [mm]	84
Polarität	(+)
Empfindlichkeit [mV/Pa]	7,4
Polar: −3dB @10 kHz [°]	300
Polar: −3dB @20 kHz [°]	140
SPL @ 1 % THD [dB]	135
SPL @ 3 % THD [dB]	144,3
Clip-Spannung [V]	14
Noise SPL lin [dB]	30,5
Noise SPL A [dB(A)]	26
Noise SPL ITU-RMS [dB]	34,8
Dynamikumfang [dB(A)]	118,3
Stromverbrauch [mA]	4,9
Anschluss/Versorgung	Mini-XLR/P48
Preis (UVP)	186,84 Euro