

# Microtech Gefell M930 Condenser Microphone

*A little known heir to the Neumann legacy, Microtech Gefell are producing some superb and cost effective microphones. HUGH ROBJOHN MIBS reports on a very versatile new model.*

Although few people realise it, Microtech Gefell was founded by none other than Georg Neumann himself in 1943, and it was with Microtech Gefell that Neumann built his first commercial microphone. The box below describes the company's interesting history in more detail, but suffice to say the company produces Neumann quality microphones which are very attractively priced.

This subject of this review is the M930, a compact, large-diaphragm phantom powered condenser cardioid microphone which actually uses the original M7 single-sided capsule design. There are also two siblings, the identical looking M940 hypercardioid version, and the M 990 valve model which has a more conventional body size.

The M930 body is constructed of steel with a satin nickel or dark bronze finish, with a multi-layer wire mesh grille. It weighs about 210 grams and measures about 120mm in length and 45mm in diameter at its widest part, with a broadly similar shape to the much larger and heavier Neumann TLM103. This compact size makes the M930 ideal for tight spaces or in-vision applications. The company logo is laser-etched, rather confusingly, on the rear of the mic's body, with the model number and polar diagram on the front, and the serial number on the surround of the XLR connector. The review model was actually part of a stereo pair, and the stand adapter was also laser etched with markings to set the mutual angle to various standard positions.

The technical specifications are very impressive, and surprisingly similar to the Neumann TLM 103. Self-noise is claimed to be an identical 7dB-A (IEC 651), with the same sensitivity of 21mV/Pa. The maximum SPL (at 0.5% distortion) is 4dB higher than the Neumann at 142dB SPL. Part of the reason for the higher headroom is a rather innovative method for generating the capsule polarising voltage. Apparently the M930 uses a high intensity LED powered from the phantom supply to illuminate a photocell which provides a decoupled high voltage bias for the capsule.

The M930's frequency response is stated as 40Hz to 18kHz, and the plots show a gentle bass roll off from about 100 Hz reaching 2 dB down at 40 Hz. This is more gentle than the TLM103, which is 2dB down at 50Hz. At the top end a presence peak spans 6 to 15kHz

with a 4dB peak. The TLM103 has a similar but much broader peak which starts at about 3kHz. The polar response is a tidy cardioid which remains well controlled across the frequency range. It doesn't open out at low frequencies as much as the TLM 103, and it remains far more consistent at middle and high frequencies too, although still broadly exhibiting the usual characteristics of a large diaphragm capsule.

## Listening

I compared the M930 directly against a TLM103 and my first impression was that these two mics sound very similar indeed - which was a surprise given their relative sizes (and prices). The M930 seemed to have a slightly smoother and more extended bass end - although proximity effect obviously has a large influence on this aspect of the sound - but overall it was quite hard to tell these mics apart. Moving around the microphones I found the M930 had a wider working area than the Neumann, principally because the upper midrange pattern didn't narrow as much, and slightly better rear rejection, especially at low frequencies.

Both mics require a pop-screen for vocal work as they are both prone to plosive popping, but the TLM 103 seemed better isolated from mechanical noise through the stand adapter. An optional shock mount is available for the M930, but not supplied as standard.

I tried the M930 on a variety of instruments, including spoken and singing voices, percussion, woodwind and brass instruments, and a solo cello. It acquitted itself very well indeed, and clearly had more headroom than the Neumann in the brass session. The presence peak is well judged and adds just enough definition to help instruments cut through in a mix without needing a fistful of EQ. As might be expected, the presence peak didn't suit all voices equally well, but with some careful positioning I was able to get very acceptable sound from pretty much everything and everyone I used the mic on. Careful positioning is the key here, as although the proximity effect is quite pronounced when working close to sources, it can be controlled predictably with small changes in distance. Although the polar pattern is impressively consistent



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with frequency for a large diaphragm mic, it still shows the inevitable high frequency narrowing which can be so helpful in taming the HF response through small changes of incident angle.

The review model was actually part of an XY stereo kit, presented in a smart wooden box with a matched pair of mics and a vertical mounting bar. The latter screws onto a mic stand and the two M930s fix to it quickly and easily such that they are positioned precisely one above the other in horizontal coincidence. Markings laser etched on the mic stand adapters enable the mutual angles to be set precisely. There is also an ORTF stereo set which is identical except that the vertical bar is replaced by a more conventional stereo bar for ORTF near-coincident mounting arrangements. I tried both set ups with good results, the XY-bar arrangement proving particularly elegant to use – providing all the convenience and precision of a single bodied stereo mic with the flexibility of separate microphones.

### Conclusion

The M930 is a very versatile and capable microphone, equalling the performance of a Neumann TLM103 in every way that is important, yet is smaller and lighter, has greater headroom, and is significantly cheaper. It works well on just about any sound source, including all forms of voice, capturing lots of detail but in a fairly neutral way. I think a good shock mount would be worthwhile, but the same applies to other similar microphones to the same extent – I always use an elastic shock mount with my TLM103s, for example.

The compact size and low weight of the M930 can be an important advantage, enabling easier and more

discrete placement, as well as allowing the mic to be positioned at a boom stand's full stretch without having to over-tighten the clutch mechanism or worry about it toppling over. Of course, sometimes a large microphone is required to massage a performer's ego, but the M930 certainly produces a full size sound, despite its diminutive stature.

The M 930 makes an ideal high quality all-rounder microphone for project studios, as well as making a very useful general purpose addition to the mic cupboard in a professional recording or broadcast studio. This microphone is priced very attractively yet matches or exceeds the performance of many mics costing significantly more.

**jbs**

### Prices

M930/M940: £525

Pair matching at no additional cost

XY stereo pair in box: £1275

ORTF stereo pair in box: £1239

All prices exclude VAT



### East Meets West

Georg Neumann established a factory in Berlin in 1927 to repair electrical appliances. However, it was damaged by an incendiary bomb in 1943 and so he set up a new repair factory in a disused textile mill in a small town called Gefell close to the old border between East and West Germany near Dresden. The first microphone made in this factory was the CMV 4a 'bottle' which used Neumann's M7 condenser capsule (later used in the U47 and M49 microphones, as well as in several of Microtech Gefell's current models).

After the war Neumann eventually returned to Berlin and started the Neumann microphone company we all know and love today. His former technical director, Mr Kuehnast, and most of the original staff remained in Gefell, also making microphones, and the two facilities remained in close contact. However, when the Berlin wall went up in 1961 all communications between East and West stopped and in 1972, as a result of the surging communism, the names of the former company owners were obliterated as 'Georg Neumann & Co./ Gefell' became VEB Mikrofontchnik Gefell.

The company continued developing various advanced technologies through the 1970s and 80s, including solid-state microphone amplifiers and government-funded development of high powered industrial lasers. In fact, the company still uses a laser engraving machine to mark the model and serial numbers on the cases of its microphones!

When the East German government finally collapsed in 1989 and the Berlin Wall came down, the Berlin Neumann company offered to co-operate with Microtech Gefell once again. As part of the co-operation deal the Neumann factory in Berlin tested the various Gefell microphones and the Neumann engineers were surprised to discover microphone technology more advanced than some of that available in the West! For example, Microtech Gefell was using hybrid FET amplifiers in the 1970s a decade before the same technology was adopted in the West, and the M900 and M910 microphones use a capsule made of a ceramic material moulded under high pressure and plated with chromium – technology developed in Moscow, perfected by Microtech Gefell, and unlike anything currently found in Western microphone designs.

Eventually Georg Neumann's heirs reclaimed a share of the company as former owners and when Sennheiser acquired the Berlin Neumann company in 1991 all links between the two companies were severed once again. Microtech Gefell is now privately owned by the Neumann family and has continued to develop high quality microphones for studio, broadcast, PA and measurement applications.

Currently under the technical supervision of Kuehnast's son, Microtech Gefell still produces the M7 capsule in exactly the same way Georg Neumann taught the elder Kuehnast in the 1940's – hand drilling each hole in the backplate, making the PVC membrane, and gluing it together by hand just as Neumann