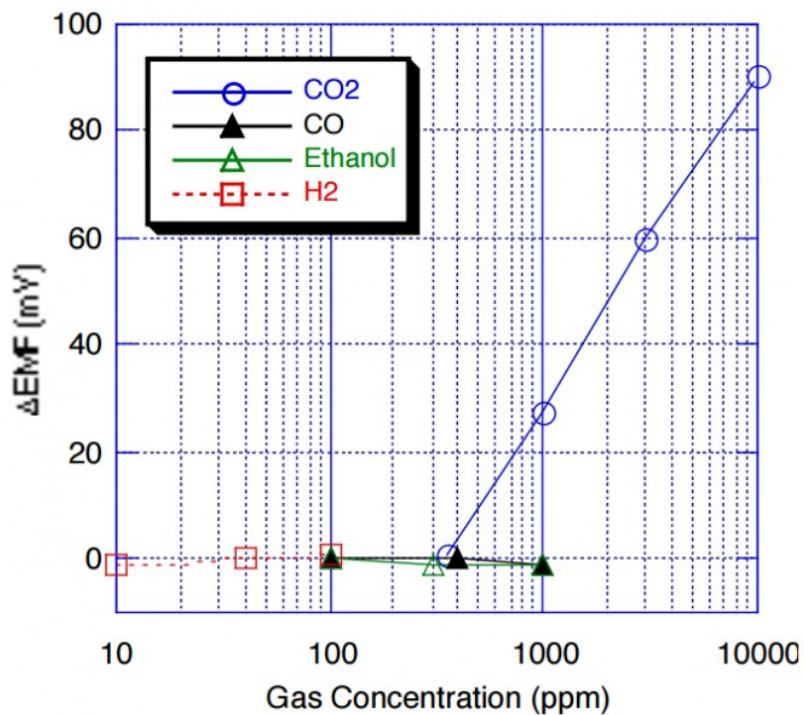


Graph aus dem Datenblatt:

Sensitivity Characteristics:



Formel Herleitung:

$$f(x) = a \cdot \ln(x) + b$$

$$b = \frac{y_2 \cdot \ln(x_1) - y_1 \cdot \ln(x_2)}{\ln(x_1) - \ln(x_2)}$$

$$a = \frac{y_1 - b}{\ln(x_1)}$$

P1(350;0) P2(3000;64)

x1 = 350

y1 = 0

x2 = 3000

y2 = 64

$$b = -(y_2 \cdot \log(x_1) - y_1 \cdot \log(x_2)) / (\log(x_1) - \log(x_2))$$

$$a = (y_1 - b) / \log(x_1)$$

Inverse function:

$$f(x) = a \cdot \ln(x) + b \rightarrow f(x) = e^{((x+b)/(a))}$$

$$f(x) = e^{((x + 174.5) / 29.79)}$$

$$f(100) = 10000$$

Code:

```
#define x1 350
```

```
#define y1 0
```

```
#define x2 3000
```

```
#define y2 64
```

```
double mv2ppm(double delta_mv) {
    double a = (y1 - (((y2 * log(x1)) - (y1 * log(x2))) / (log(x1) - log(x2)))) / log(x1);
    double b = (((y2 * log(x1)) - (y1 * log(x2))) / (log(x1) - log(x2)));
    return exp((delta_mv - b) / a);
}
```