

AEM EMS 4bar calibration

go to setup : sensors : map sensors : options
min voltage .08
max voltage 4.88
scalar 3.8
load offset 15.0
filter 10
frequency 0

The car fuel and ignition tables will need to be retuned for the engine to idle as they will still be based on the previous map sensor even though the map sensor calibration is correct.

Motec

The Motec M4 and M48 will use the one file and the 'hundred series' (M400, M600 and M800) will use the other.

OMNI 4 Bar MAP setup for M4 / M48

Setup MAP to -1 in "sensor setup"

Go to Sensor Cal Tables >> Manifold Pressure

Set "0" to 0 and hit enter
Set "10" to 3 and hit enter
Set "20" to 41 and hit enter
scroll all the way over to 400
Set "400" to 983 and hit enter
Set "410" - "500" to 1024 hitting enter after each one

All the boxes you hit enter on should have an * next to the number

Now hit F9 and go to "interpolate Horizontal row" and hit enter

Now hit "G" and make sure you have a linear interpolation between 10 and 400

Check a few data points, you should have:

100	239
200	487
300	735
400	983

Calibration
Table

	26	Input	V								
1	0	0.32	0.563	0.926	1.168	1.895	2.621	3.347	4.073	4.799	Voltage
	0	30	50	80	100	160	220	280	340	400	KPA
	-14.5	-10.1	-7.2	-2.9	0	8.7	17.4	26.1	34.8	43.5	PSI

1bar=100KPA=14.5PSI=1000milibar

3 bar

Scalar: 617

Offset: 11

Voltage to pressure (KPA) conversion

P= pressure in KPA 4 bar = 400 KPA

Voltage out/signal = 5 X (.00318 X P - .00353)

Example: Atmosphere equals 1 bar or 100 KPA = 5 X (.00318 X 100 - .00353) = 1.572 volts @ 1 bar or 100 KPA

4 bar

Scalar 838

Offset 31

Voltage to pressure (KPA) conversion

P= pressure in KPA 4 bar = 400 KPA

Voltage out/signal = 5 X (.002421 X P - .00842)

Atmosphere equals 1 bar or 100 KPA = 5 X (.002421 X 100 - .00842) = 1.168 volts @ 1 bar or 100 KPA

Crome Custom

Min: 34.7 mbar

Max: 4000 mbar

AEM

MIN=0

MAX=4.8

LOAD OFF SET=0

LOAD SCALAR=4.0

THE 3 AND 7 BAR ARE THE SAME LOAD OFF SET AND MIN JUST USE THE MAX VOLTAGE FROM THE CONVERSION TABLE AND 3.0 AND 7.0 FOR THE SCALAR

7 bar

Scalar 1582

Offset -351

Voltage to pressure (KPA) conversion

P= pressure in KPA 4 bar = 400 KPA

Voltage out/signal = 5 X (.0012858 X P + .04)

Example: Atmosphere equals 1 bar or 100 KPA = 5 X (.0012858 X 100 + .04) = .843 volts @ 1 bar or 100 KPA

Omnipower Map sensor voltage vs pressure data

Calibration Table All sensors linear

Volts 3						
bar	0.777	1.572	2.367	3.162	3.957	4.752
kPa 3						
bar	50	100	150	200	250	300

Volts 4								
bar	0.563	1.168	1.774	2.379	2.984	3.589	4.195	4.8
kPa 4								
bar	50	100	150	200	250	300	350	400

Volts 7														
bar	0.521	0.843	1.164	1.486	1.807	2.129	2.45	2.772	3.093	3.415	3.736	4.057	4.379	4.7003
kPa 7														
bar	50	100	150	200	250	300	350	400	450	500	550	600	650	700

FAQ

What calibration do I use if my engine management won't convert scalar and offset numbers.

On the calibration page there are formulas to convert the pressure to a voltage to make your own table for each sensor type.

Will the MAP sensors cause idle problems or poor drivability?

No, with proper calibration the engine will run and drive like it has the stock map sensor. Each sensor has been tested on non-turbo engines with no change in mileage or drivability.