EVC WinOLS Diesel Tuning – Common Map Sizes



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WinOLS Diesel Tuning – Common map sizes and names

The information in this document contains the listings of the commonly found map types and their typical map sizes that you may come across when tuning a diesel vehicle – this is designed to support your learning and understanding of this lesson.

Overview

Whilst there are many other combinations of map table, the information in this document provides the details of the commonly required maps for tuning and their potential table sizes.

Always remember to use the additional tools at your disposal to help recognise the map and its function in the ECU file.

Checking the 3-D and 2-D views to confirm the size and shape of the map, along with the pattern of the data.

The size of the map will help you to understand if it is a map type you are looking for and of course, the physical values in the tables will help to further verify if you have located the correct map.

Fuel Injection Timing (Duration) / Injector Pulse Width

40x32	40x30	40x17	40x16
29x17	29x16	24x18	24x16
20x20	20x17	20x16	20x15
16x16			

Boost Pressure / Turbo Pressure / Target Boost Pressure / Turbo Pressure Control

16x20	16x16	16x15

Boost Pressure Limiter / Max Boost Pressure / Turbo Pressure Limiter

12x10	12x8	10x10	7x14	7x13

Rail Pressure

16x20	16x16	16x15

Rail Pressure Limiter

12x10	12x8	8x8

Start of Injection Angle (SOI) / Phase of Injection

19x16	19x15	16x16	16x15	10x14

Fuel Quantity Injection / Injection Quantity / NM Conversion Table

18x16	16x16	16x15

Drivers Wish / Driver demanded Torque / Fuel during acceleration / Torque request

These are often found in one of many combinations as shown below

6 / 8 / 10 / 13 / 14 / 16	X	8 / 10 / 13 / 14 / 16

Torque Limiters

24x8	24x8	24x4
25x4	25x3	24x4
24x3	20x8	8x31
3x24	3x20	1x29
1x25	1x24	1x21
1x20	1x19	

EGR Control / EGR duty cycle

16x16	16x15	14x14

Smoke Limiter / Lower lambda For Smoke Limitation / Fuel Quantity Limiter

16x16	16x14	16x13

Lambda

16x16	16x15	16x13

Torque request during cranking / fuel request during cranking / Starting maps

9x10	9x9	8x9	8x8

Common Map Values and representation

Raw ECU value / range	Common converted value	Typical representation	Common use in diesel maps
0–8192	0–100%	Accelerator pedal / TPS / driver request axis	Driver wish, torque request, pedal interpretation maps
8192	100%	Full pedal request	Often the top axis breakpoint in diesel torque request maps
4096	50%	Half pedal request	Mid-load driver wish region
2048	25%	Light pedal request	Part-load drivability and smoke/torque shaping
0–10000	0–100%	Percentage using factor 0.01	Some Siemens/Continental/Bosch style normalised axes
0–32768	0–100% or 0–1 normalised	15-bit normalised percentage	Torque intervention, actuator position, pedal, limiter normalisation
0–65535	0–100% or full-scale unsigned	16-bit unsigned maximum	Generic normalised axis, sensor or actuator range
0–255	0–100%	8-bit percentage axis	Older/smaller maps, duty cycle, actuator command
0–1024	0–100% or ADC-like scaling	10-bit sensor style range	Sensor voltage interpretation, pedal/brake/clutch plausibility
0–5000 / 6000 / 7000	RPM directly, or scaled	Engine speed axis	Torque limiters, smoke limiters, boost, SOI, duration
500, 750, 1000, 1500, 2000…	RPM directly	Engine speed breakpoints	Very common in EDC16/EDC17 maps when RPM is stored directly or with simple factor
1000–2500	mbar absolute	Boost / manifold pressure	Boost target, boost limiter, smoke limiter, compressor maps

Raw ECU value / range	Common converted value	Typical representation	Common use in diesel maps
2300 mbar	About 1.3 bar gauge boost at sea level	Absolute pressure	Example: 2300 mbar absolute ≈ 1.3 bar boost + 1.0 bar atmosphere.
800–1200	mbar absolute	Barometric pressure / ambient pressure	Altitude correction, boost control, smoke limitation
0–1000	0–1000 mg/stroke air mass	MAF / cylinder charge	Smoke limiter, EGR, air charge model
200–1200	mg/stroke	Air mass per stroke	Lambda/smoke control, EGR control, torque model
0–100 / 0–120	mg/stroke fuel	Injection quantity	Duration, torque-to-IQ, smoke limiter, rail pressure
0–10000 / 0–12000	0–100 or 0–120 mg/stroke with factor 0.01	Injection quantity	Some ECUs store IQ with factor 0.01; others use 0.1 depending on generation.
0–5000	0–500 Nm with factor 0.1	Torque	Driver wish output, torque limiters, gearbox torque limiters
3200	320 Nm with factor 0.1	Torque value	Common Bosch torque scaling example.
0–8000	0–800 Nm with factor 0.1	Torque	Larger diesel torque model values, V6/V8 diesel, torque monitoring
0–3000	0–3000 bar or 0–3000 mbar depending on map	Rail pressure or boost pressure	Must identify context carefully
200–2000	bar	Common rail pressure	Rail pressure target, rail pressure limiter, diagnostic thresholds
1600 / 1800 / 2000	bar	High rail pressure region	Full-load rail pressure targets/limiters

Raw ECU value / range	Common converted value	Typical representation	Common use in diesel maps
0–1000	°C direct or scaled	Temperature axis	EGT, coolant temp, intake air temp, oil temp protection
-40 to 120	°C	Temperature breakpoint axis	Coolant/IAT correction, start maps, smoke correction
233–393	Kelvin-style temperature	Temperature in K	Some ECUs store temperature as Kelvin or offset value
0–90 / 0–120	°C	Coolant/oil temperature	Warm-up torque, idle, start quantity, protection
0–850	°C	Exhaust gas temperature	EGT limiter, component protection, DPF protection
0–100	%	EGR duty/request/position	EGR maps, EGR hysteresis, air-path control
0–10000	0–100% with factor 0.01	EGR / throttle / swirl / VGT position	Actuator command or feedback maps
0–95	% duty cycle	N75 / boost control / VGT duty	Turbo control maps, actuator duty limiters
0–1000	Lambda ×1000 or equivalence scaling	Lambda / AFR-related axis	Smoke limiter, lambda target, air-fuel model
1000	Lambda 1.00	Stoichiometric/reference lambda scaling	Diesel smoke control uses lambda target/limit logic
1200–1800	Lambda 1.20–1.80	Lean diesel operating range	Smoke/air-fuel limiters
0–60	degrees crank angle	SOI / injection timing	Start of injection, pilot/main/post injection timing
-20 to +40	°CA BTDC/ATDC	Injection timing angle	SOI maps, combustion phasing

Raw ECU value / range	Common converted value	Typical representation	Common use in diesel maps
0–3000 / 0–5000	µs	Injection duration	Duration maps versus IQ and rail pressure
200–2000	µs	Main injection pulse width	Duration conversion from fuel quantity and pressure
0–1000	mm³/stroke or mg/stroke depending on ECU	Fuel quantity	Older ECUs may use mm³/stroke rather than mg/stroke
0–15 / 0–20	mm³/stroke	Pilot injection quantity	Pilot injection maps
0–5	injection event index	Pilot/main/post index	Injection split strategy
0–6	gear number	Gear axis	Gear-dependent torque limiters, smoke, boost, EGR
0–250	km/h	Vehicle speed	Speed limiter, torque reduction, gear recognition
0–3000	hPa/mbar	Pressure sensor axes	MAP, exhaust pressure, ambient pressure, DPF differential pressure
0–1000	mbar or hPa	DPF differential pressure	DPF load model, regeneration diagnostics
0–100	grams or % soot load	DPF soot model	Regeneration trigger, torque protection
0–65535	diagnostic threshold / timer / counter	Raw unsigned constant	DTC thresholds, timers, hysteresis, enable conditions

Common Map Context

Axis combination	Likely map type
Pedal % × RPM → Nm	Driver wish / torque request
RPM × IQ → duration	Injection duration
Rail pressure × IQ → duration	Injection duration conversion
RPM × Nm → IQ	Torque-to-fuel conversion
RPM × air mass → IQ	Smoke limiter
RPM × boost pressure → IQ or lambda	Smoke / air-path limiter
RPM × IQ → boost target	Boost target / charge pressure request
RPM × IQ → rail pressure	Rail pressure target
RPM × IQ → SOI	Start of injection
Temperature × RPM → correction	Warm-up, protection, start, torque correction
Gear × RPM → Nm	Gear-dependent torque limiter
Vehicle speed × gear/RPM → Nm	Speed/gear torque limitation
Atmospheric pressure × RPM → boost/IQ correction	Altitude compensation
EGT × RPM/IQ → Nm or IQ limit	Exhaust temperature protection