EN Motorsport

Thank you for your purchase of the EN Motorsport M54 PNP adapter for the ECUMaster Black.

This PNP-adapter replaces the original MS43 ECU. If you own another ECU (MS42 or MS45, refer to the corresponding manuals). Make sure that your car uses the MS43 before continuing. Slight modifications to the plastic container for the OEM ECU is required.
Our recommendation is that you use our manual in conjunction with the official pinout from ecumaster to make sure that your installation is correct.
The pinouts stated in this document is also referring to the official one which is looking into the Black ECU.

Colour coding	
Gul	MUST be used by the ECU
Grön	Is available and can be used
Grå	Extern i/o that is not used by the PNP adapter

Observe! Pinouts stated below is the same as the official ones. I.e they are looking into the Black ECU. Cables are connected to the connecters in a straight manner as seen in the picture to the right. No cables are crossing each other except if you are using some that are labeled with a green colour.
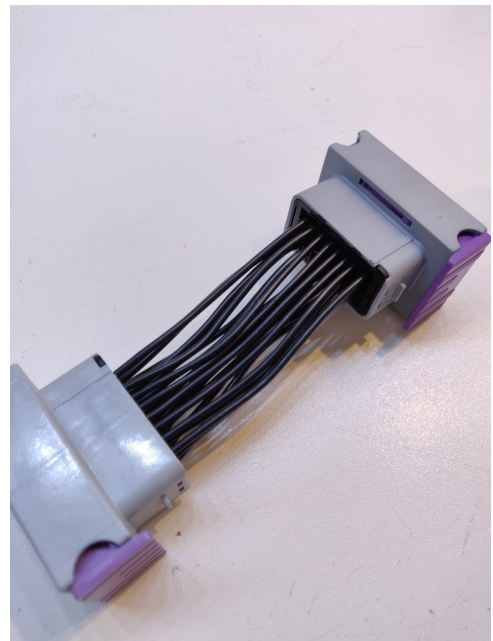
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Table of contents

1. Pinout

Black 39 pin connector		
1 -Ign coil #5	14 - Ign coil #4	27 - GND
2 - EGT in #1	15 - EGT in #2	28 - ECU GND
3 - Knock sensor #1	16 - Knock sensor #2	29 - Sensor GND
4 - Analog in #2 - TPS2(DBW pos 2)	17 - Analog in #3 - Oil temp	30 - Analog in #4
5 - CLT - Water temp	18 - TPS - PPS1	31 - Analog #1 - TPS1(DBW pos 1)
6 - WBO Vs	19 - WBO Ip	32 - IAT - Intake air temp
7 - Camsync in #2 - Avgas	20 - VSS - ABS-sensor RR	33 - WBO VGND
8 - Primary trigger - Vevaxel	21 - Camsync in #1 - Insug	34 - +5V output from ECU
9 - Flex Fuel sensor input	22 - WBO Rcal	35 - Analog in #5 - PPS2
10 - Switch #1	23 - Switch #2 - Brake pedal	36 - Switch #3 - Clutch pedal
11 - RS232 TXD	24 - RS232 RXD	37 - Analog in #6
12 - CAN H	25 - CAN L	38 - Sensor GND
13 - Konstant +12V	26 - +5V utgång	39 - Sensor GND

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Explanations Green label	
23 - Switch #2 - Brake pedal	This output provides 12V+ when depressed. This can be connected to analog in. It cannot be used directly in the switch input
36 - Switch #3 - Clutch pedal	This output provides 12V+ when depressed. This can be connected to analog in. It cannot be used directly in the switch input
3 - Knock sensor #1	This can be used when needed. Is often not used when using E85.
16 - Knock sensor #2	This can be used when needed. Is often not used when using E85.

Gray 24 pin kontakt		
1 - Ign coil #6	9 - Ign coil #3	17- GND
2 - H-bridge #1A - DBW	10 - H-bridge #1B - DBW	18 - Ignition/KL15 +12V
3 - H-bridge #2A - Fuel pump	11 - H-bridge #2B - AC	19 - WBO Heater
4 - AUX 6 - Electric Fan PWM	12 - AUX 5 - Termostat PWM	20 - AUX 4 - Idle 2
5 - AUX 3 - Idle 1	13 - AUX 2 - VANOS exhaust	21 - AUX 1 - VANOS intake
6 - Injector #4	14 - Injector #5	22 - Injector #6
7 - Injector #1	15 - Injector #2	23 - Injector #3
8 - Ign coil #1	16 - Ign coil #2	24 - GND

Modifying the adapter

As you can see above, all outputs are used in the ECUMaster black. This means that you as a customer must choose what to remove if you want to run a MAC-valve for boost control or similar.

EN Motorsport recommends to either sacrifice AC(If not used)(H-bridge #2B) or the VANOS for the exhaust cam (AUX2). VANOS control of exhaust cam provides a very minimal increase in torque output. It is also possible to remove the IAC and run the DBW with idle control. Thus, this can free up 4 outputs or 3 if you are planning to keep AC.

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Limitations in the PNP adapter

The following is not connected in the adapter:

Komponent	Kommentar:
EVAP	Tank ventilation. Can be vented to atmosphere
DISA flap in intake	Not recommended in a boosted application. The DISA unit should be replaced and blocked off for minimal risk of damage to the engine.
Original oxygen sensor	Bosch LSU 4.2 eller 4.9 should be used
Air mass meter	Is not used, Use the MAP sensor in the ECU

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Examples of installation