

# INTRODUCTION

The Electronic Throttle Control System (EML) regulates the operation of the throttle valve(s). The scope of EML design on BMW engines provides:

- Throttle valve positioning for optimum starting
- Precise idle speed regulation without the use of an external idle control valve/circuit
- Progressive throttle opening curves matched to the driving program (with EGS/AGS interface)
- Cruise control operation without additional control modules and linkages
- Automatic synchronization of the throttles (airflow balancing) for two independent banks, throughout the entire engine speed range (M70, S70, M73 engines only)
- Intake air volume control for ASC/DSC (Automatic Slip Control/Directional Stability Control) systems
- Maximum road speed limiting
- Emergency “Failsafe” operation in the event of component failures

The EML control module is a link in the total scope of Engine Management Control. The EML is interfaced with other control modules to complete the management system, which includes:

- ECM(s) - Except E46 (EML integrated in MS42.0 ECM)
- EGS/AGS
- ABS/ASC

The main components of the EML system are:

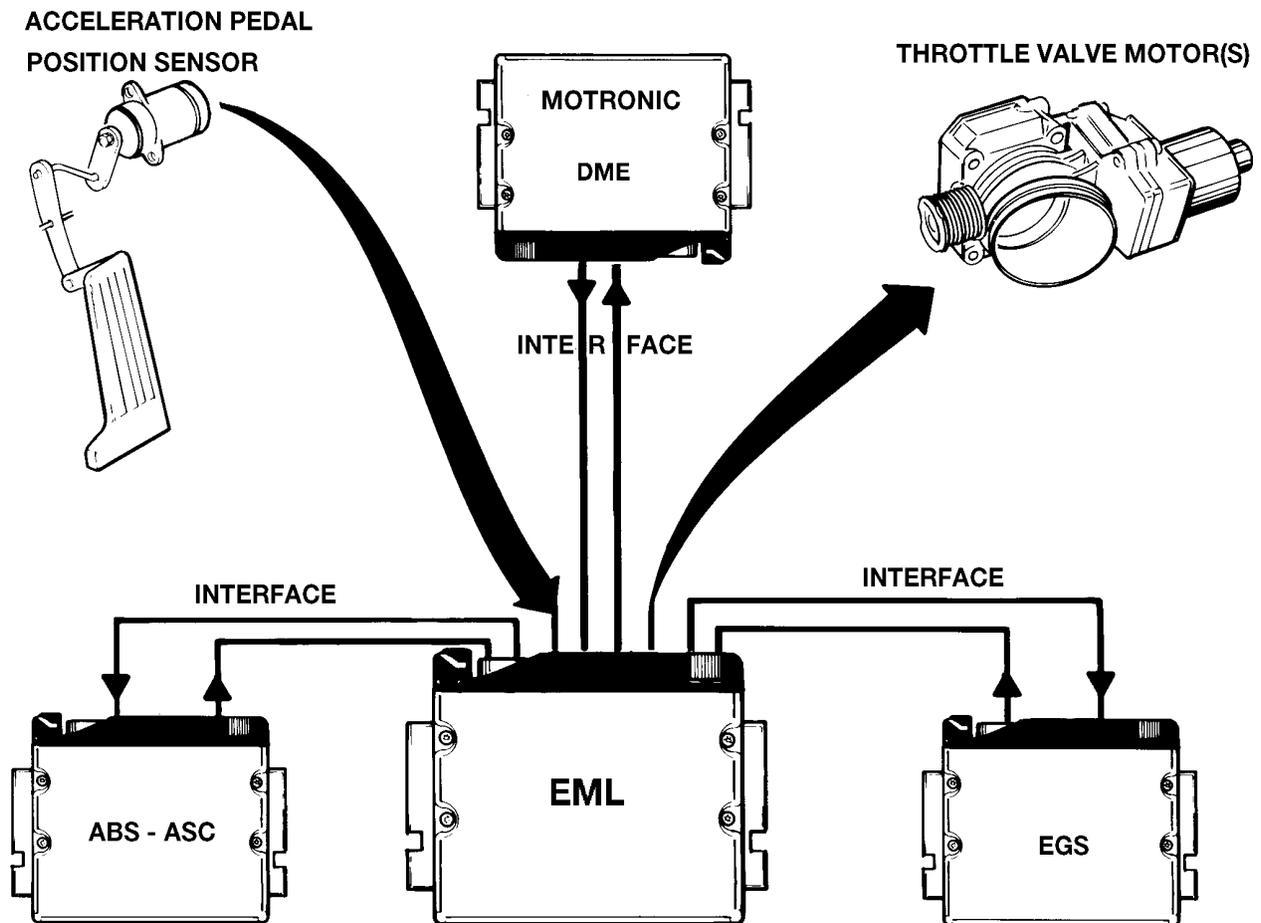
- Accelerator pedal position sensor (PWG)
- Accelerator pedal position sensor (driver’s wish sensor - integrated in throttle housing, E46 MS42.0)
- Throttle valve assembly/assemblies with electronic control motor(s) - DK/MDK
- EML control module (MS42.0 ECM - E46)

# EML SYSTEM OVERVIEW

Throttle valve control is managed electronically, using an electric motor(s), without the use of mechanical linkages or cables (except E46 - MDK).

The EML system uses a microprocessor to convert the input signal for the position of the accelerator pedal into output commands for control of the throttle valve. The position of the pedal is merely a request to the control module for throttle opening. The EML module processes this input request along with other pertinent operating parameters. The throttle valve is then moved to its proper position according to specific control unit programming.

The total scope of output control functions for the EML includes:



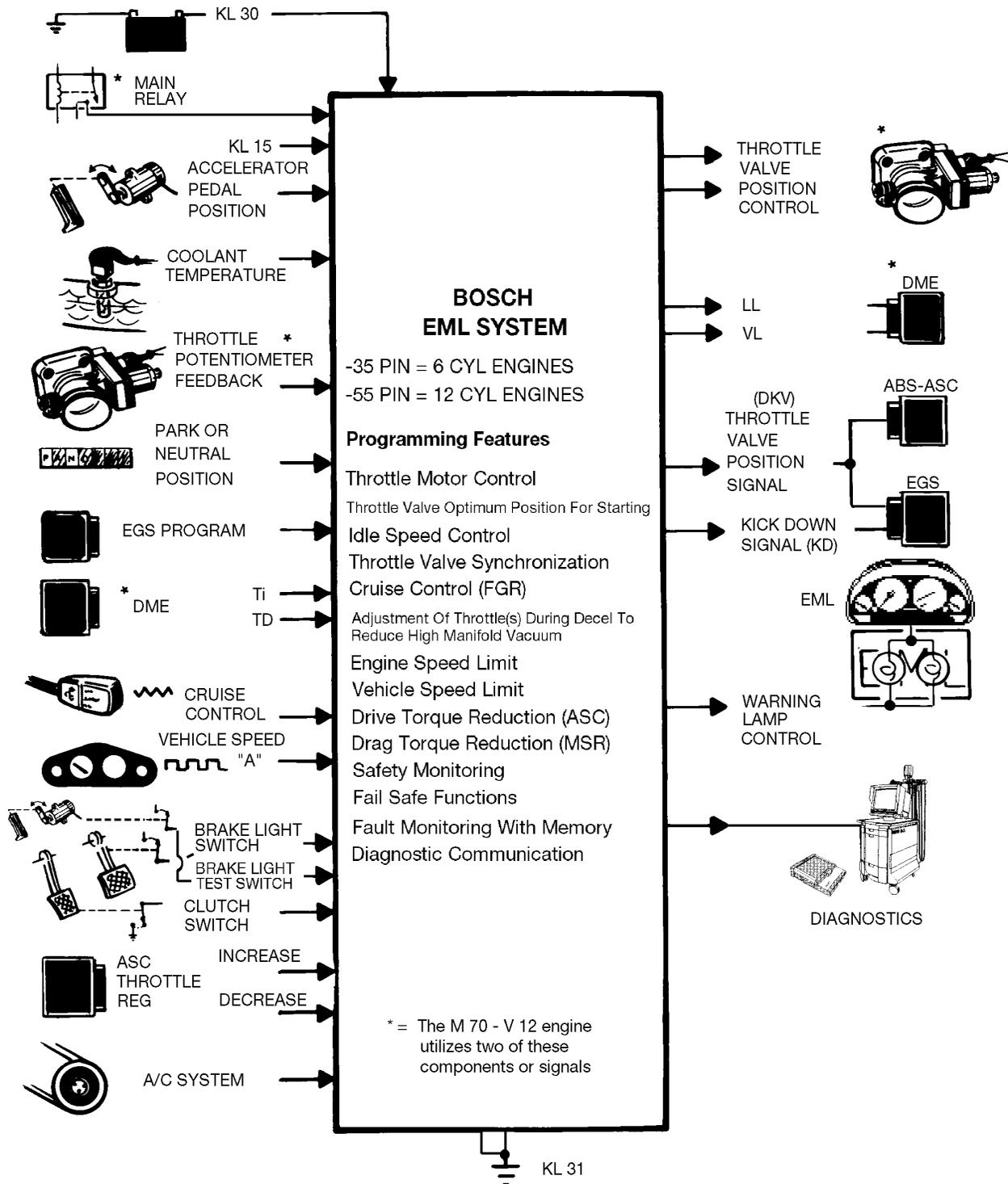
# EML Control System Version Identification By Vehicle

BMW engine management systems have evolved through the model years. The evolution is due to continued technical refinement and emission level compliancy.

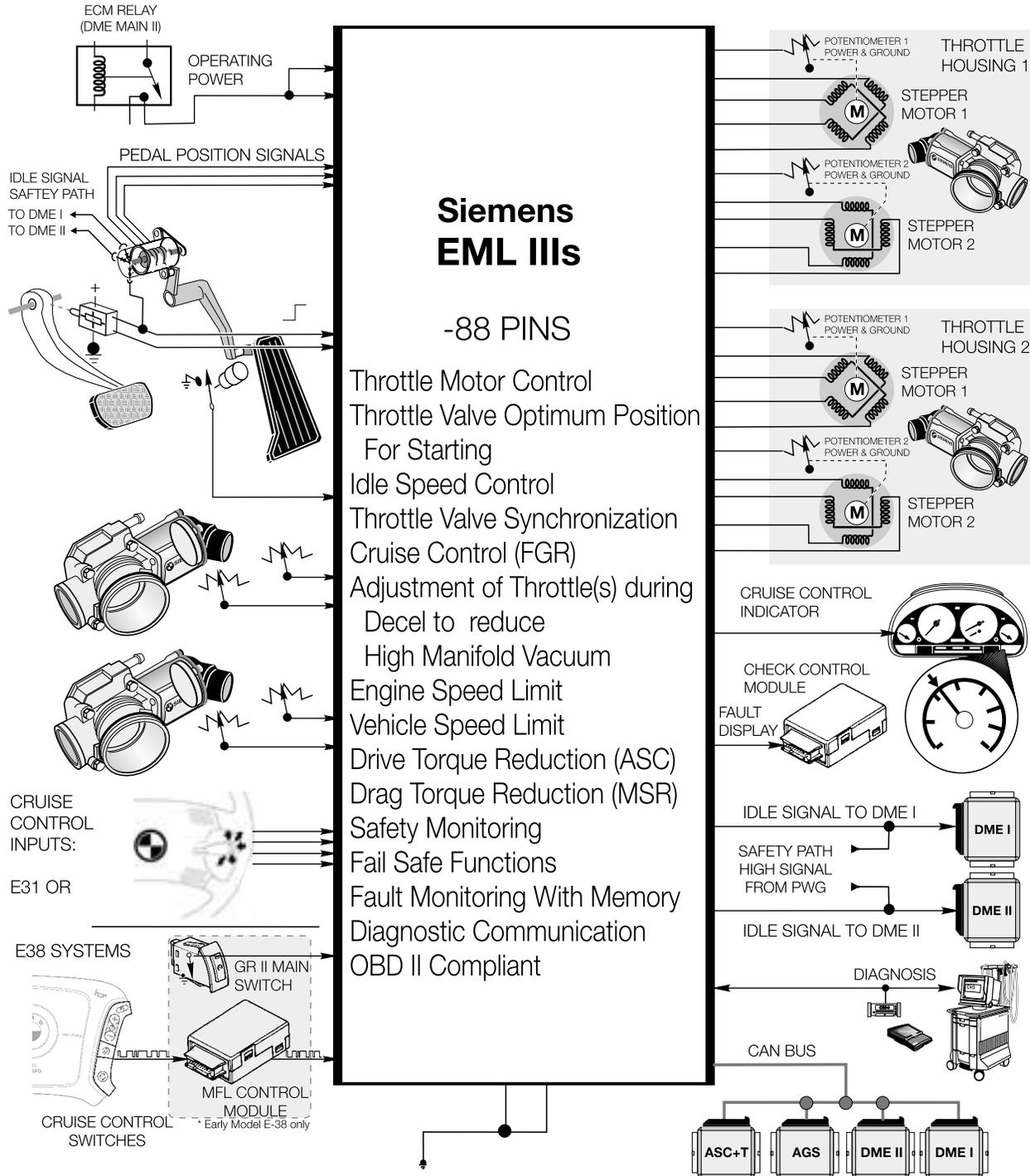
Same version systems may be different from vehicle-to- vehicle. This additionally increases the number of system variations as well.

<b>VERSIONS</b>	<b>MODEL</b>	<b>ENGINE</b>	<b>MODEL YEAR</b>
Bosch 1.2	E32	M70	1988-1990
Bosch 1.7	E31	M70	1990-1994
Bosch 1.3	E32	M30	1991-1992
Bosch 1.3	E34	M30	1991-1993
Bosch 1.7	E32	M70	1991-1994
Bosch 1.7	E31	S70	1994-1995
Siemens IIIs	E38	M73	1995-present
Siemens IIIs	E31	M73	1995-1997
Siemens MS42.0	E46	M52TU	1999-present

# SYSTEM OVERVIEW - I-P-O



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