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Product News

MoTeC P/L is proud to announce the release of the *MoTeC MDC* - Mitsubishi Diff Controller, p/n 14012.

MoTeC's Mitsubishi Diff Controller (MDC) replaces the factory fitted Active Centre Diff (ACD) controller. It is a bolt in replacement making use of the factory mounting points. The Mitsubishi ACD controller box is bolted to the side of the centre console under the dashboard.

The MoTeC MDC is suitable for EVO 7, 8 and 9s fitted with the ACD system from the factory. The MDC can be used in cars fitted with the ACD/AYC (Active Yaw Control) but the AYC will be disabled.



EVO 4 and 5s are not supported due to the difference in ACD/AYC controller connector but it would be possible to rewire the factory loom to suit the MDC (contact MoTeC for details).

MDC Functionality

The MDC is used to adjust torque split between the front and rear differentials by controlling fluid pressure to the centre differential. The centre diff is essentially a limited slip differential with adjustable preload, where the preload is proportional to fluid pressure. The MDC controls the operating pressure in of the centre diff by maintaining pressure in the hydraulic system accumulator. The actual line pressure on the diff is less than the accumulator pressure. The MDC regulates the solenoid current, with 0% to 100% lock controlling the current between a minimum and maximum current, which in turn controls the fluid pressure.

When no pressure is applied (0% lock) the centre differential operates as an "open" diff. As fluid pressure (% lock) is increased the "preload" is increased, requiring more torque difference between front and rear before the centre differential will slip.

The MDC can be used to adjust several aspects of vehicle handling. For example increasing lock during braking can improve braking stability on loose surfaces. Reducing lock can improve turn in, while increasing lock can promote understeer on both corner entry and exit. Naturally the MDC can also influence traction.

There are six selectable control modes, 0%, 100% and four user configurable modes. The control modes can be cycled through using the factory dash mounted ACD button, the mode is indicated by the standard dash board lights as follows:

	0% Lock	User Mode 1	User Mode 2	User Mode 3	User Mode 4	100% Lock
TARMAC	○	○	○	●	●	●
GRAVEL	○	○	●	○	●	●
SNOW	○	●	○	○	○	●

Lock Calculation

The Lock percentage applied to the centre diff is determined from a 3D table of vehicle speed vs throttle position or a MoTeC ECU provided Efficiency point. There is an option to add %lock based on wheel slip (difference between front and rear wheel speed), ie: increase lock and thus power to the front wheels when slip is greater than the desired slip at a particular throttle position.

Each of the four user modes consists of an acceleration table, a braking override table, a desired slip table and slip control parameters. The braking table acts as an optional override under brakes.

Communications

MDC Manager

The MDC Manager software is used to configure an MDC unit from a PC. The MDC software can be installed either from the MoTeC Resource CD supplied with the MDC, or from the MoTeC website.

The MDC Manager software allows configurations to be created, edited and sent to the MDC. The MDC configuration file determines exactly how the MDC unit will operate.

MDC Firmware is user upgradeable over the CAN bus from MDC Manager.

To prevent unauthorised copying of configuration data, *configurations cannot be read out of the MDC.*

Connecting to a MDC

The MDC connects to the PC using the MoTeC CAN cable connected to the PC parallel port. The MDC unit must be powered to communicate with the PC.

CAN Channels

The MDC CAN interface can optionally transmit sensor and diagnostic information to a MoTeC ADL. This allows the collection of wheel speed, throttle and brake data without the need for additional sensors.

RS232 Channels

The MDC can send wheel speeds, Lateral and Longitudinal G Force, diff parameter and Fault Codes to the MoTeC OEM M800 ECU via serial communications (must use M800 version 3.31D or later software). The ECU will also send the calculated Efficiency Point channel to the MDC when the serial communications is configured. This feature uses the factory wiring loom.

Software & Documentation

The MDC Manager software is available for download from the MoTeC software website. The installation includes the MDC User Manual.

Price and Availability

Price – please refer to your MoTeC Dealer price list. The MDC is available ex stock MoTeC P/L.

Should you have any further queries regarding this bulletin, do not hesitate to contact MoTeC Support.

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