NEWTON CMG PACKAGE
When a CMG cluster
becomes as easy as wheels

Avionics
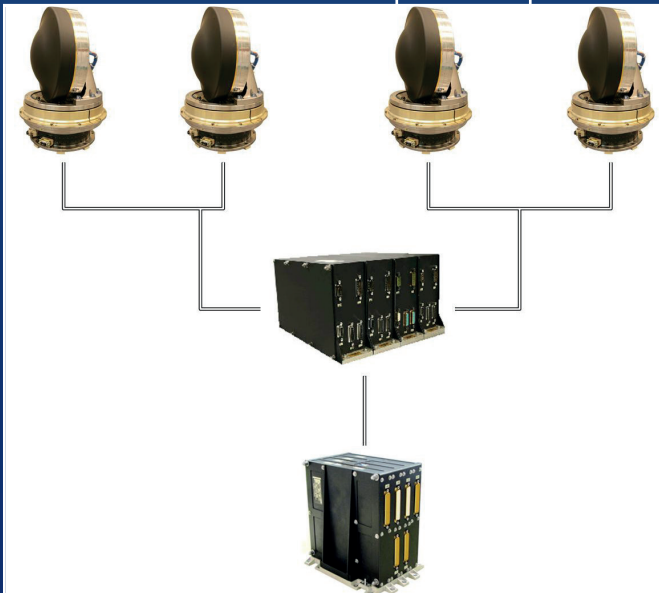
In addition to a classic CMG cluster, the Newton package provides full CMG steering laws, increasing drastically the level of service and reducing the risk for customers. With the Newton package, use of a CMG cluster becomes as easy as a wheel cluster.

AIRBUS

NEWTON CMG PACKAGE PRINCIPLE

A CMG cluster controlled like wheels

The Newton package simplifies the use of CMG at spacecraft level. In addition to a classic CMG cluster, the Newton package provides full CMG steering laws, increasing drastically the level of service and reducing the risk for customers.

The Newton control laws manage the usual CMG clusters control issues (non-linearity of CMG control, singularity avoidance…)

NEWTON architecture

The Newton assembly is composed of three different units: four mechanisms (CMG-M), their drive electronics (CMG-E) and the processing unit (CMG-O) that contains the steering laws.

All the electronics are connected to the main power bus and the thermal control is performed by the S/C.

TM/TC transit from the S/C to Newton through a 1553 MIL bus.
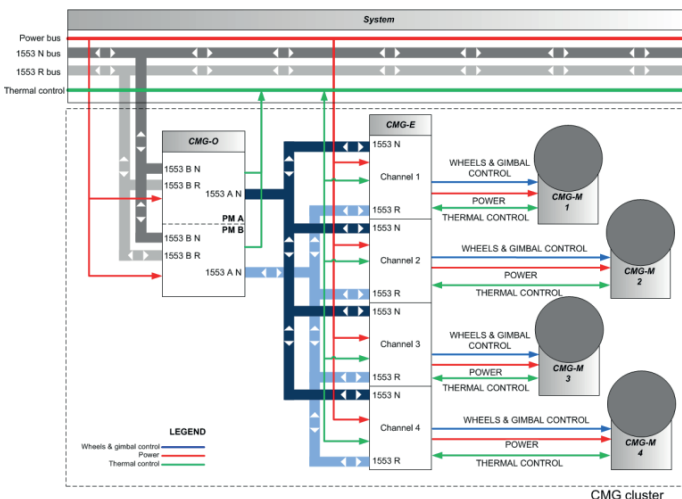
System integration simplified

Newton integration into AOCS closed loop is eased by an "autonomous torque box" concept. The mode logic includes initialization, nominal operations and contingency investigation. In Operational mode, the spacecraft only sends a periodic 3 dimensional torque command that is automatically translated into a CMG cluster command.

Newton also embeds FDIR logic that automatically protects CMG from its physical limitations regardless of the torque command.
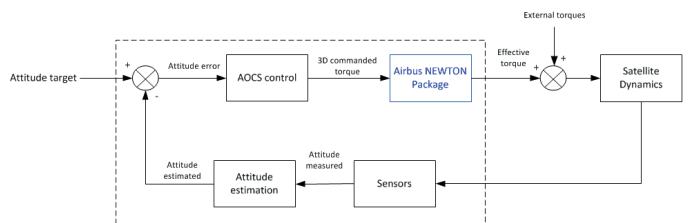
A product based on proven technologies

Both mechanisms and electronics have been designed for series production to minimize recurring costs.

We continue to innovate, bringing forward new hardware models and software features based on our existing flight proven solutions.

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