



# Flex-0

## Overview

The Flex-0 provides a compact solution for controlling a vehicle's built-in actuators via CAN, or drive-by-wire capability. The AB Dynamics comprehensive software suite can be used to perform many standard tests without the need to install driving robots in the vehicle; including Path Following and Synchro.

The controller communicates with the vehicle's systems using the CAN protocol, this control interface is only possible by collaboration between AB Dynamics and the OEM. AB Dynamics provides a standard CAN control protocol which can be translated by the customer into a form accepted by the vehicle. Alternatively, AB Dynamics can provide a protocol made to a custom specification.

The Flex-0 can also be used as part of AB Dynamics' Driverless Test System (DTS) allowing tests to be conducted without a driver in the vehicle.



## Specification

|                              |   |
|------------------------------|---|
| Mass                         | 3kg   |
| Dimensions                   | 380 x 220 x 65mm                                      |
| Data capture frequency       | User selectable up to 2kHz                            |
| Digital I/O                  | 4kHz scan frequency                                   |
| Analogue inputs (8 channels) | 16-bit resolution at 4kHz sample frequency            |
| Power input                  | 11-15V DC (11V nominal), Max current with S-Brake 15A |

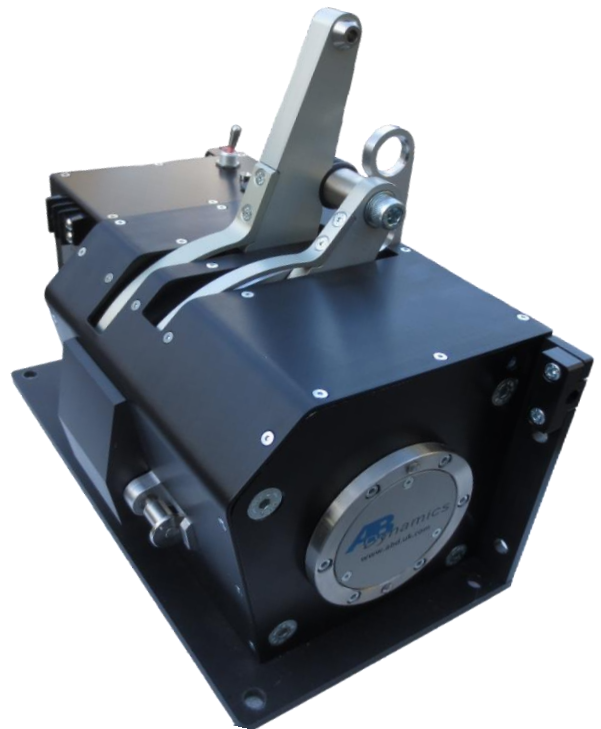
## Features

- Compact design dramatically reduces the amount of hardware required in the test vehicle
- Uses AB Dynamics' Robot Controller software to provide a comprehensive suite of tests including Path Following and Synchro
- Dual CAN interfaces – one for control and one for data capture and transfer
- Baud rate and message frequency for CAN communications can be configured to suit application
- Interfaces to the control PC running AB Dynamics' Robot Controller software via Ethernet
- Motion pack interface to OxTS, Genesys, iMar and Racelogic products (Ethernet or CAN depending upon motion pack type)
- Compatibility with AB Dynamics' Driverless Test System (DTS) to allow dangerous or arduous tests to be performed without occupants inside the vehicle

## Driverless Test System (DTS)

When used as part of a Driverless Test system, the Flex-0 can be interfaced with an auxiliary safety brake and ignition kill system (S-Brake) to emergency stop the vehicle in the unlikely event of a failure of the main control system, or failure of the CAN communications to the vehicle. The auxiliary safety system is designed with comprehensive redundancy and self-checking functionality to further minimise the risk of an uncontrolled vehicle.

The Flex-0 and S-Brake continuously send watchdog signals between each other so that in the event of a failure of one unit, the other can attempt to stop the vehicle. In addition, both units are connected to a base station via a radio link which enables the vehicle to be programmed and controlled remotely. The systems will also ensure that the vehicle is stopped in the event of a radio communications failure.



SBrake System

## Multi-vehicle synchronisation

The Flex-0 can also be used as a Sync-Omni, allowing multi-vehicle synchronisation with AB Dynamics' ADAS targets; the Guided Soft Target (GST), Soft Crash Target (SCT), Soft Pedestrian Target (SPT) and LaunchPad.

