



## MCAB180 driving simulation systems

STISIM Drive® is a programmable and fully interactive virtual reality driving simulator engineered to take advantage of cutting edge computer technology. Results from more than four decades of independently validated driving simulation research are incorporated into STISIM Drive® software and systems. More than 500 universities, government agencies, medical facilities, training centers, and corporations have used STISIM Drive® to conduct research, perform patient assessment and treatment, and provide driver training.



MCAB180 system with 180° field of view curved screen

### MCAB180 Systems Description:

STISIM Drive® MCAB180 simulation systems are interactive driving simulators powered by the programmable STISIM Drive® software engine. Integrated into an actual automobile cab, the MCAB180 simulation systems includes a 180° driver field-of-view, STISIM Drive's ADS automobile steering controller and advanced foot pedals that provide a more realistic driving experience. MCAB180 simulation systems are engineered to deliver superior simulation performance at a cost effective price. STISIM Drive® Scenario Definition Language (SDL), software that allows for custom designed roadway environments and situations, is included.

The MCAB180 systems are based on an actual production automobile cab, similar to a Ford Focus. The steering control system is an actual automobile production steering system, using a precision torque motor, digitally tuned to present a most realistic steering feel. The cab comes with an optional fully operable dashboard. The MCAB180 simulation systems provide the end user a choice of either a curved screen with a three front projector illuminated driver field of view, or a five 65 inch LED/LCD screen field of view.

STISIM Drive® MCAB180 simulation systems come with over ninety ready to run driving scenarios that provide diverse driving situations, customizable roadway environments, and use an extensive library of roadway objects. STISIM Drive® Scenario Definition Language (SDL), software that allows for custom designed roadway environments and situations, is included. The key features of SDL are:

- Allows definition of the visual data base (intersections, vehicles, pedestrians, traffic control devices, buildings, flora and fauna, miscellaneous elements).
- Intelligent traffic and pedestrians can be programmed to present hazards.
- Roadway profile is defined in terms of highway engineering specifications (horizontal and vertical curvature and transitions, cross section slopes, etc.).
- Built in Tasks: Car following, divided attention, simple reaction time tests.
- Scenarios that cover urban, rural, suburban, highway, and special environments like dessert, mountain, and school zones.
- SDL language allows for user customization of existing scenarios, and provides the basis for users to create custom scenarios that fit their demand.
- Allows for user definable data collection.

All STISIM Drive® systems come with an extensive user base supported by hundreds of peer reviewed publications. The STISIM Drive® MCAB180 simulation systems will enable the end user to eliminate the risks of on-road driving, safely evaluate high risk drivers, and achieve objective, accurate and repeatable performance measurements in a cost effective environment.



MCAB180 system with five 65" HD LED monitors for the 180° driver field of view

**Applications:**

- Research and Development
- Driver Assessment
- OT Rehabilitation
- Driver Training

**Features:**

- Production automobile cab environment
- STISIM Drive® ADS steering
- Choice of
  - 180° curved projector driver field of view screen
  - 180° Five 65" LED HD monitor driver field of view
- High speed graphics and sound processing
- More than 90 pre-designed scenarios
- STISIM Drive® Scenario Definition Language (SDL)
  
- Module programming feature
- Interactive and programmable roadway events
  
- Detailed help files, documentation, user resources
  
- Scenario playback
- Transmission options

**Benefits:**

- Actual car environment
- Actual automobile steering unit
  
- Realistic roadway environments
- Ready to drive, test, and evaluate
- Interactive and programmable roadway environments
- Modify existing or create custom scenarios
- Control events, signal lights, pedestrians, vehicle traffic
- User definable data collection
- Programming experience not required
- Advanced scenario and configuration design
- Operator initiated events
- Cue scenario events dynamically
- Ease of operation and maintenance
  
- Visual replay of previous sessions
- Supports both automatic and manual transmissions

**Optional software expansion modules:**

## Advanced Dynamics Module, VDANL Drive

- Comprehensive vehicle dynamics simulation with a composite slip tire model.
- Simulates virtually all driver induced maneuvering up through limit performance conditions defined by tire saturation characteristics (spin-outs and rollovers).
- Simulates performance of passenger cars, light trucks, SUVs, buses and articulated vehicles.

## Programmable Plug-in Module, Open Module

- Allows users to write custom source code modules that can be plugged into the STISIM Drive® simulation loop, using standard languages such as C, C++, VB, and other Windows COM compliant languages.
- Provides the user with a means of creating custom and proprietary enhancements that expand the capabilities of the basic STISIM Drive® software.

## DUI Module

- Adds realistic time delays to the driver's inputs to simulate driver responses when drunk.
- User can specify a BAC or have the software compute BAC based on driver's gender, age range, body size, number of drinks and drinking time.
- Simulates tunnel vision effect that occurs at higher BAC levels.
- Can be used with any existing driving scenario.

**Performance measures:**

Accident Counts:	Vehicle, pedestrian, obstacles, off-road
Brake and Accelerator:	Speeding behavior, reaction time, time to collision, tailgating
Steering and Handling:	Lane position and deviation, centerline and edge crossings
Driver Compliance/Attention:	Signal lights, signs, turning, divided attention
User selectable data:	Programmable via Scenario Definition Language (SDL)

**System Components:**

Computers:	Dell™ desktop workstations with high performance nVIDIA graphics card
Driver Display:	180 Degree field of view with five 65" displays 180 Degree field of view screen option with front or rear projectors
Operator Display:	Minimum 20" LCD (1 unit), for scenario control and tracking
Steering Wheel:	STISIM Drive® ADS advanced digital steering (Force feedback, 900° rotation)
Gas and Brake Pedals:	Advanced pedals
Electronic documentation:	Included
Warranty:	1 Year
Tech Support:	Included
Operating System:	Microsoft Windows®
Software Compatibility:	STISIM Drive® DUI Module, STISIM Drive® Open Module
Head and Eye Tracking:	Compatible synchronization with multiple eye tracking systems
Hand Controls	Optional Equipment

For more information visit us at [www.stisimdrive.com](http://www.stisimdrive.com) , or call us at 310-679-2281.

