



ACTIVE SAFETY

Product Portfolio

GLOSSARY

| PRODUCT | DESCRIPTION |
|--|---|
| UFOpro target carrier (UFOpro) | UFOpro target carrier for use with vehicle targets. |
| UFOpro Black Series target carrier (UFOpro Black Series) | 100km/h version of the UFOpro for use with vehicle targets. |
| UFOnano target carrier (UFOnano) | UFOnano target carrier for use with VRU targets. |
| UFOmicro target carrier (UFOmicro) | UFOmicro target carrier for use with PTW targets. |
| UFO target carrier model range (UFO models) | Used to specify all Humanetics UFO models. UFOpro, UFOpro Black Series, UFOnano, UFOmicro. |
| UFObase Software (UFObase) | UFObase Software to control Humanetics active safety products. |
| Global Vehicle Target (GVT) | Vehicle target used in NCAP protocol as defined in Euro NCAP TB025. |
| Powered Two Wheeler (PTW) | Motorized two-wheelers such as motorcycles. |
| Vulnerable Road User (VRU) | Road users who are particularly at risk of being injured or killed in traffic because they are not surrounded by a “protective shell” such as a driver’s cab. E.g. pedestrians and cyclists. |
| Vehicle Under Test (VUT) | Vehicle tested according to protocol with a pre-crash collision mitigation or avoidance system on board. |
| Autonomous Emergency Braking (AEB) | Automatic braking that is applied from the vehicle in response to the detection of a likely collision to reduce the vehicle speed and potentially avoid the collision. |
| Lane Keeping Assist (LKA) | Heading correction that is applied automatically by the vehicle in response to the detection of the vehicle that is about to drift beyond a delineated edge line or road edge of the current travel lane. |
| Car-to-Car Rear Braking (CCRB) | Collision in which a vehicle travels forwards towards another vehicle that is travelling at constant speed and then decelerates, and the frontal structure of the vehicle strikes the rear structure of the other. |
| Emergency Lane Keeping (ELK) | Automatically applied heading correction by the vehicle in response to the detection of the vehicle that is about to drift beyond the edge of the road or into oncoming or overtaking traffic in the adjacent lane. |
| Autonomous Emergency Steering (AES) | Automatically applied steering by the vehicle in response to the detection of a likely collision to steer the vehicle around the vehicle in front to avoid the collision. |
| Emergency Steering Support (ESS) | System to support the driver steering input in response to the detection of a likely collision to alter the vehicle path and potentially avoid a collision. |
| Forward Collision Warning (FCW) | Audio-visual warning that is provided automatically by the vehicle to the detect a likely collision to alert the driver. |

UFO

ULTRA-FLAT OVERRUNABLE TARGET CARRIER

The UFO target carrier was first introduced to the market in 2010, when a German OEM and Tier 1 requested a low-maintenance, overrunable target carrier for active safety testing.

The electrically-driven UFO target carrier can be controlled remotely by an operator, and can be synchronized with vehicles as well as other test robots to execute various autonomous test maneuvers. The stability and low profile of the UFO¹ allows vehicle manufacturers to run fully autonomous testing on the latest collision mitigation features with maximum accuracy and repeatability, and without risking damage to the robots or test vehicles.

Efficiency and ease-of-use were core philosophies for subsequent hardware and software development. All Humanetics active safety robots are designed with high-capacity, swappable batteries allowing uninterrupted testing on the proving ground. A variety of targets can be utilized with the various UFO models, delivering tailored test conditions for each specific use case.

| | UFOpro target carrier ² | UFOnano target carrier ³ | UFOmicro target carrier ⁴ |
|-------------------------|--|--|---|
| Speed range | -20 / +100 km/h* | -10 / +20 km/h | -20 / +80 km/h |
| Targets - main use case | Vehicle target | Pedestrian Adult; Pedestrian Child; Bicyclist; E-Scooter, PCT (Playing Child Target) | PTW (Powered Two Wheeler); CNCAP E-Scooter |
| Targets - with add ons | Pedestrian Adult; Pedestrian Child; Bicyclist | | Pedestrian Adult; Pedestrian Child; Bicyclist |
| Footprint | 2950 x 1690 mm (test ready) 1605 x 1110 mm (transportation) | 800 x 700 mm | 1050 X 980 mm (propulsion module) |
| Overrun Height | 98 mm* | 20 mm (VRU mounting module) 60 mm (propulsion module) | 70 mm (propulsion and PTW mounting module) 20 mm (VRU mounting module) |
| Overrun* | Passenger vehicles Commercial vehicles | Passenger vehicles Commercial vehicles | Passenger vehicles Commercial vehicles |
| Minimum turning radius | 6 m | 0 m (turn on the spot) | Lane changes |
| Motion accuracies | In line with Global NCAP and ISO requirements | In Line with Global NCAP and ISO requirements | In Line with Global NCAP and ISO requirements |
| Positioning system** | RTK DGNSS single antenna unit with GPS/GLONASS | RTK DGNSS dual antenna unit with GPS/GLONASS | RTK DGNSS dual antenna unit with GPS/GLONASS |
| Communication to base | UFObase ⁵ , compatible with multiple robots for swarm testing | UFObase, compatible with multiple robots for swarm testing | UFObase, compatible with multiple robots for swarm testing |

*depending on version

**indoor positioning system options available on request

¹ The designated hereinafter referred to as UFO, is describing UFO target carrier incl. UFOpro target carrier, UFOpro Black Series target carrier, UFOnano target carrier and UFOmicro target carrier.

² The designated hereinafter referred to as UFOpro, is describing UFOpro target carrier.

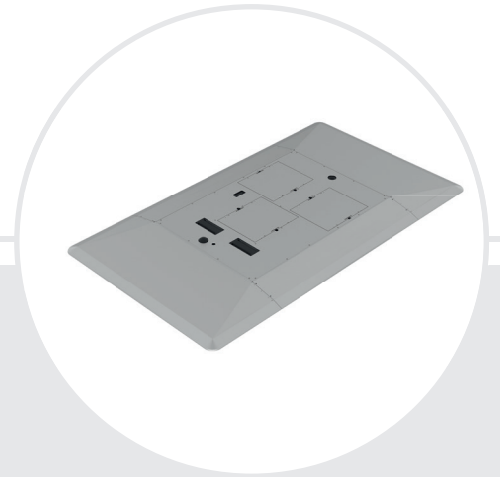
³ The designated hereinafter referred to as UFOnano, is describing UFOnano target carrier.

⁴ The designated hereinafter referred to as UFOmicro, is describing UFOmicro target carrier.

⁵ The designated hereinafter referred to as UFObase, is describing the UFObase Control Software.

UFOpro

TARGET CARRIER



UFOpro Target Carrier KEY FEATURES

- Low overrun height of 98 mm – to be overrun/over-braked by a vehicle without damaging the vehicle or the target carrier
- Quick and simple access to all internal components with a single central cover plate which can be easily removed with just a few screws
- Swappable batteries to continuously run high speed tests (i.e. Euro NCAP lane support system tests) with zero downtime for recharge; this feature also enables replacement batteries to be charged at a slower rate, thus extending battery life and ease transportation by UN38.3 certification
- Removable ramps simplify transportation and storage by reducing the overall size and weight of the target carrier, which can be easily transported with any standard minivan-sized vehicle
- 100% splash water protection system allows for testing in adverse weather conditions (e.g. muddy, wet, salty) and minimizes maintenance effort and cost
- Designed to enable fast wheel changes
- Screw-less, welded ramp system for reduced RCS
- Stable 4-wheel chassis for minimized rolling of the target in dynamic lateral motions (e.g. wind suction/slipstream during overtaking)
- Single operator handling
- Designated official tool by Euro NCAP laboratories (e.g. ADAC, AstaZero, CSI, Thatcham)
- Global Vehicle Target (GVT) and UFO Target Carrier in accordance with the Euro NCAP/NHTSA/IIHS confirmation workshops
- UFObase Control Software can be easily integrated with third-party driving robots
- Measures relative distance/orientation between the target carrier and the vehicle being tested (optional Range-Function); an existing OxTS range system can be connected as well
- VRU testing in longitudinal and crossing scenarios with optional VRU kit add-on
- Additional space available for integration of V2X equipment in the central battery bay, including Network, CAN and power connection
- Several standard safety functions ensure safety of operators; optional add-ons such as proving ground warning lights and monitoring systems can be integrated into the UFO product family.
- Additional add-on modules available for increased testing flexibility

UFOpro

TARGET CARRIER

UFOpro target carrier

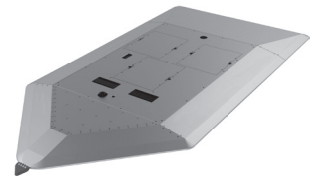
The UFOpro is the default version of the UFO; with its low overrun height of 98 mm and swappable batteries, it is designed for Euro NCAP ADAS testing. The UFOpro is available with an optional ABS system and as a Heavy Duty version. The UFOpro Heavy Duty has the equipment of an UFOpro, but with added robustness and equipped with reinforced ramps and top cover. The UFOpro Heavy Duty can be run over by a car as well as by a commercial vehicle. An additional set of batteries can be purchased separately.

UFOpro Black Series target carrier

With a maximum speed of 100 km/h including a GVT dummy, the UFOpro Black Series¹ is a step up from the UFOpro. It has an increased gear ratio as well as a specific control algorithm for high speeds. Like all UFOs, the UFOpro Black Series is available with an optional ABS system. Both the UFOpro Black Series and the UFOpro share a similar mechanical design, so that an UFOpro can easily be upgraded to an UFOpro Black Series.

Arrow Ramps

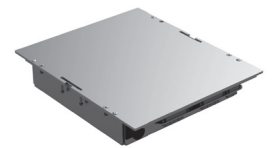
Can be swapped with standard front ramp for side impact testing of cars.



See the Arrow Ramps in action.

Additional Lithium Power Pack

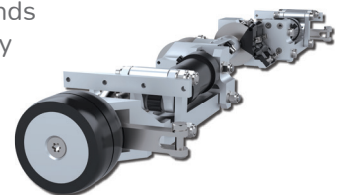
Extra power pack allows ongoing testing without downtime for charging batteries.



See the fast and easy battery swap.

Anti-Lock Braking System (ABS)

The UFO platform's ABS extends tire life, saving time and money in addition to reducing waste



See the ABS in action.



See the UFOpro target carrier in action.

¹ The designated hereinafter referred to as UFOpro Black Series, is describing UFOpro Black Series target carrier

UFOpro

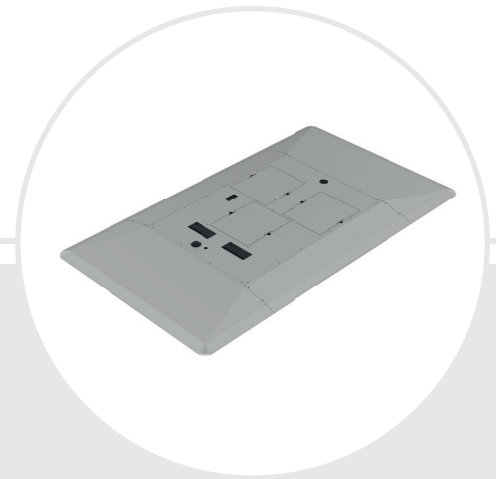
TARGET CARRIER

UFOpro SPECIFICATIONS

| | |
|-------------------------|--|
| Maximum power | 25 kW |
| Power electronic | 450 A |
| Battery | 2 Lithium power packs incl. 3 built-in battery slots |
| Maximum speed | 80 km/h |
| Maximum acceleration | 3 m/s ² (up to 20 km/h) |
| Controlled deceleration | 6 m/s ² |
| Transportation size | 1605 x 1100 mm |
| Test ready size | 2950 x 1690 mm |
| Carrying weight | 126 kg |
| Test ready weight | 244 kg |

UFOpro BLACK SERIES SPECIFICATIONS

| | |
|-------------------------|--|
| Maximum power | 30 kW |
| Power electronic | 450 A |
| Battery | 3 Lithium power packs incl. 3 built-in battery slots |
| Maximum speed | 100 km/h |
| Maximum acceleration | 3 m/s ² (up to 20 km/h) |
| Controlled deceleration | 6 m/s ² |
| Transportation size | 1605 x 1100 mm |
| Test ready size | 2950 x 1690 mm |
| Carrying weight | 126 kg |
| Test ready weight | 264 kg |



The UFOpro target carrier is available in different models with variable add-on options to meet any customer testing needs.

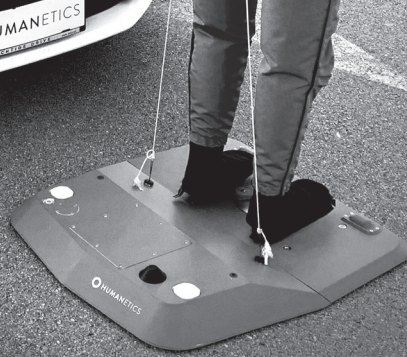
The UFOpro conforms to the following scenarios

- » AEB-C2C
- » AEB-VRU (with arm extension)
- » FCW-C2C
- » FCW-VRU (with arm extension)
- » ELK (oncoming-overtaking)
- » AES
- » ESS
- » REAR AUTOMATIC BRAKING
- » BLIND SPOT DETECTION
- » BLIND SPOT INTERVENTION
- » PEDESTRIAN AEB
(with VRU Kit)
- » INTERSECTION SAFETY ASSIST
- » OPPOSING TRAFFIC SAFETY ASSIST
- » TRAFFIC JAM ASSIST

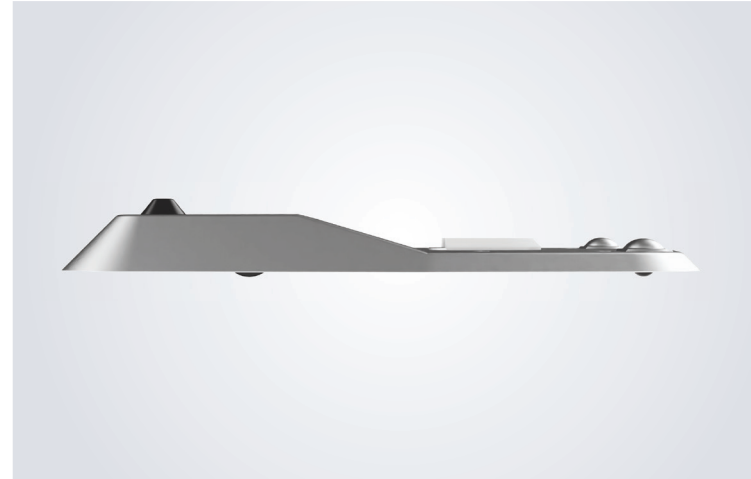
.... and many more scenarios thanks to the flexibly configurable GUI.

UFO nano

TARGET CARRIER



The UFO nano target carrier was developed specifically for pedestrian and bicycle testing. Its unique 2+2-wheeler design enables highly agile two-dimensional movements of pedestrian and bicycle dummies, enabling it to simulate complex and realistic scenarios for VRU active safety system tests. Despite the reduced size of the UFO nano, it retains the same robustness as the other UFO target carrier models for added stability, especially in windy conditions.



This versatile new device features the same familiar design as the Humanetics UFO pro target carrier, however its compact size and steering setup allows it to drive curves of every radius and even turn on the spot.

It can easily accommodate a pedestrian test dummy with a shoulder width footprint barely larger than that of a real person, allowing multiple dummies to 'swarm' together with closest shoulder to shoulder distance and mimic individualized behavior.

As the other UFO models, the UFO nano is overrunable and has the advantage of high-capacity, swappable batteries. The target carrier is fully integrated into the Humanetics UFO base Control Software for complex testing using different robots from the Humanetics family.

Its modern stealth design featuring a sleek, robust metal surface makes the UFO nano invisible to the test vehicle's radar – a necessity for maintaining realistic test conditions.



See the UFO nano target carrier in action.

UFO nano

TARGET CARRIER



SPECIFICATIONS

| | |
|---------------------------------|---|
| Accuracy | Up to 3 cm |
| Acceleration | 2m/s ² incl. Euro NCAP approved adult pedestrian dummy mounted |
| Waterproof | Splash water protected |
| Dimensions | 700 x 800 mm, diamond design |
| Chassis height | 20-65 mm |
| Maximum speed | 20 km/h |
| Weight | 25 kg |
| Battery | 4 hot swappable batteries, incl. 2 built-in battery slots |
| Payload | 12 kg |
| Chassis design | Split design (drive unit/mounting unit) |
| Motor | 2x electric high power density motors |
| GNSS | Dual antenna RTK |
| Communication | WiFi with hardware acceleration |
| Operating software | UFObase Control Software |
| Remote control | Master control panel with HD display |
| Capabilities | Multi-UFO / Swarm testing |
| RCS | Diamond shape, optimized according ISO19206-2/Euro NCAP requirements |
| Pedestrian ACEA dummy | Mounting according ISO 19206-2 |
| Bicycle dummy | Yes |
| Other VRU dummies | With flexible interface on request |
| Onboard communication Interface | Ethernet RJ45 socket |

Key Features

- » Swappable batteries
- » Speeds up to 20 km/h
- » RTK DGNS system for high accuracy
- » On-the-spot turning for realistic pedestrian behavior
- » Integrated with UFObase Control Software for complex testing
- » Rope-free
- » Simple and reliable design
- » Robust metal construction with ultra-low radar cross-section
- » Special stealth outer shell design for optimized radar signature
- » Designed to accommodate both current and future ATD generations
- » Shoulder-to-shoulder testing to 500mm
- » Versatile modular build consisting of robot plus an exchangeable extension to allow for different footprints
- » Seamless integration with Humanetics active safety product family for synchronized testing

UFOmicro

TARGET CARRIER

Being the latest addition to the active safety products, the **UFOmicro** target carrier was developed specifically for PTW (Powered Two Wheeler) and VRU (Vulnerable Road User) tests. To cover realistic road traffic conditions and behavior of road users, the **UFOmicro** can reach a speed of up to 80 km/h carrying a PTW or CNCAP E-Scooter target. With its mountable extension, it can carry bicycle and different pedestrian VRU targets with no effort.



The target carrier is equipped with multiple motion data input and output interfaces and a highly accurate dual antenna DGNS system.

As with the all other Humanetics UFO models, the **UFOmicro** is traversable and has the advantage of high-capacity, swappable batteries.

The **UFOmicro** is designed to cover all Global NCAP testing needs to 2025 and beyond.



Even being the most recent addition to the Humanetics UFO model range, the **UFOmicro** can be seamlessly integrated in the existing and proven Humanetics UFObase software environment. The configuration and testing of complex real life scenarios with up to ten robots can be done easily due to the seamless synchronization. Considering the important aspects of reliability and repeatability, the **UFOmicro** was designed with extremely high lateral and longitudinal accuracies for dependable and repeatable testing.

In addition, our dedicated team of engineers have conducted radar measurements to confirm the extremely low radar signature of the stealth design.



See the **UFOmicro** target carrier in action.

UFOmicro

TARGET CARRIER



SPECIFICATIONS

| | |
|---|---|
| Dimensions | 1050 x 980 x 70 mm |
| Weight | 85 kg |
| Payload | 25 kg |
| Maximum speed (including ACEA motorbike target) | 80 km/h |
| Speed control accuracy* | 0.2 km/h with ACEA Dummy |
| Speed measurement accuracy | 0.01 km/h |
| Side accuracy* | 50 mm SD1 |
| Yaw rate* | +/- 2 deg/s |
| Longitudinal acceleration* | 4 m/s ² |
| Longitudinal deceleration* | 6 m/s ² |
| Positioning system | RTK DGNSS dual Antenna unit with GPS/GLONASS and Beidou |
| Batteries | 2 high capacity swappable batteries Hot swap maintains the DGNSS initialization |
| Battery set duration* | Half testing day Battery swapping time: 2 minutes |
| Battery set charging time | Max. 1 hour |
| Traversability | Passenger Vehicles Commercial Vehicles |
| Compatible dummies | ACEA Motorbike Dummy ACEA Scooter Dummy ACEA Adult Pedestrian (mounting height 25mm on mountable extension) ACEA Child (on mountable extension) ACEA Bicycle (on mountable extension) |
| RCS | In line with US/CD 19206-x and Global NCAP requirements |
| Operating software | UFObase Control Software |
| Compatibility | Up to ten Humanetics robots in one scenario Third party DrivingRobot interface on request |

* Equipped with PTW dummy depending on the speed of the UFOmicro

Key Features

- » **Swappable batteries** with 500 Wh capacity per battery set
- » **Speeds up to 80 km/h**
- » **Waterproof design**
- » **Remarkable side accuracy of 50 mm**
- » **Integrated with UFObase Control** environment for complex testing
- » **Special stealth shell design** for optimized radar signature
- » **Designed to cover Global NCAP testing needs up to 2025 and beyond**
- » **Possibility to configure and test complex scenarios with multiple robots**
- » **Highly accurate dual antenna RTK DGNSS system**
- » **Seamless integration** with Humanetics active safety product family for synchronized testing

DrivingRobot

The **DrivingRobot** is able to control the steering, braking and acceleration of a test vehicle. The test vehicle can be navigated around the test track automated with highly precise measurements of position, velocity, acceleration and more. Fully synchronized tests are made possible when used with the different UFO target carriers and its GNSS-aided navigation system.



The **DrivingRobot** is also characterized by its compact design that frees up space and enables quick and hassle-free installation. The steering and throttle/brake robots are interconnected to provide ample room for electronics and data acquisition systems as well as easy access for test engineers. In addition, the all-inclusive **DrivingRobot Box**, containing all electronic components, can be easily installed with ISOFIX in the rear seat into the trunk.



See the **DrivingRobot** in action.

Moreover, the **DrivingRobot** can be installed without interfering with the original steering wheel, airbag or the seating position of the operator. The robot turntable is installed behind the vehicle's steering wheel, and is activated with the grasp of the operator. In the event of an emergency, the operator can simply let go of the robot wheel and immediately take manual control of the vehicle's steering wheel. The seating knee area is also kept clear so the safety of the occupant is not compromised. The robot is free of any support-arm structures to the windshield or passenger side window. The friction compensation limits the influence of the robot to the vehicle's steering system and can be used to simulate the grip of the driver on the steering wheel. It is adjustable in four steps, from holding the steering wheel tight to hands off.

The **DrivingRobot** can be perfectly integrated into the UFO product family by sharing the same UFObase Software as the UFO target carrier line; no learning curve is needed for additional software. Multiple UFOs and/or **DrivingRobots** for swarm testing can be controlled, managed and analyzed from just one computer.



DrivingRobot



ROBOT CONTROL

| | |
|--------------------------------|--|
| Power supply | 48 V battery system, 760 Wh |
| Swarm testing | Yes |
| Signal channels and interfaces | CAN, RS232, Ethernet |
| Sampling frequency range | 100 Hz |
| Compatibility | Humanetics UFO target carrier products (third party systems on request/interfaces) |
| Power-Off protection | Dedicated battery system |
| Screen | Tablet PC or in-car use |

STEERING ACTUATOR

| | |
|-------------------------------|--|
| Drive mode | Brushless electric motor |
| Max torque | 40 Nm at 1300°/s |
| Rated torque | 15 Nm at 1800°/s |
| Max velocity | 2100°/s at 10 Nm |
| Rotational inertia | 0,0656 kgm ² incl. Ring guide |
| Steering wheel diameter | 329-389 mm |
| System angle control accuracy | +/- 0.5° |
| Control mode | Path following, wheel angle control, steering wheel angle control, friction compensation |
| Space behind steering wheel | For fixation of clamps |

THROTTLE PEDAL ACTUATOR

| | |
|----------------------------|--|
| Max continuous pedal force | 56 N |
| Max throttle pedal force | 156 N |
| Max throttle pedal speed | 1 m/s |
| Max stroke | 104 mm |
| Control mode | Speed control, position control, force control |

BRAKE PEDAL ACTUATOR

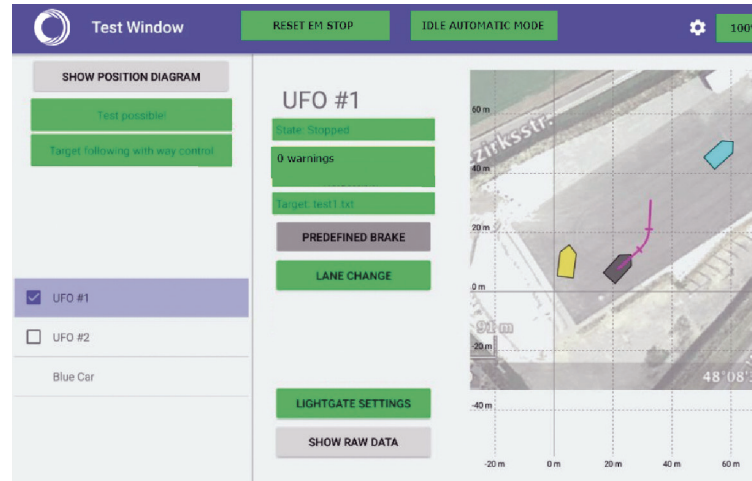
| | |
|-------------------|---|
| Security | Safe design – driver can overrule the brake and take over control at any time |
| Drive mode | Brushless electric motor |
| Max braking force | 1000 N (depending on mounting angle) |
| Max velocity | 1 m/s |
| Max stroke | 140 mm (depending on mounting angle) |
| Control mode | Speed control, position control, force control |

Key Features

- » Compact design with slim central stand to eliminate the need for struts to passenger windshield; trunk free for data acquisition
- » Adjustable friction compensation mode (4 levels) allows testing of LKA scenarios and scenarios where active intervention of steering is involved
- » No dismounting of the airbag or steering wheel needed – vehicle retains its full safety features, and no special training for the installation team required
- » Comfortable seating position for the driver with clear view to the proving ground
- » Electronic components housed in robust and easy-to-handle DrivingRobot Box
- » Self-contained 48V battery – no additional electricity supply needed from the vehicle
- » Seamless integration with the UFO target carrier environment – utilizes same intuitive and user-friendly UFObase Software
- » Smart hardware design allows simple, quick installation
- » Self-calibration software ensures fast, effortless start-up

SOFTWARE

UFObase is the software for the UFO Target Carriers and DrivingRobots, and comes with an intuitive graphical user interface. To minimize preparation time on the proving ground, **UFObase Software** can be used to preconfigure and simulate simple to complex scenarios offline. Test scenarios can be created and run with multiple target carriers and/or DrivingRobots simultaneously for swarm testing. The operator can live-monitor all connected robots, vehicles and the corresponding data such as position and speed.



Distinguishable and selectable control modes ensure that the UFOs and DrivingRobots operate in exact accordance with the customer's specifications. One can choose between way- or speed-controlled tests, and manual or automated triggers to predefine specific test scenarios like braking, lane change, and so on.



See the optimized ADAS workflow in action.

The optional Synchronization Software package offers additional synchronization modes between UFO target carriers and/or DrivingRobots to the VUT (Vehicle Under Test). To provide a maximum level of security, all UFO target carriers and DrivingRobots have their own on-board controller which in critical situations can bring the robot to a standstill. The newly-developed Control Panel guarantees that there is only one operator per running test monitoring the UFO target carriers, and enables them to intervene if necessary. Additional equipment from Humanetics, such as the Traffic Light Box, can easily be added to the test setup in the UFObase software.

UFObase script language (UBS) is designed to give the user extensive flexibility in programming complex and multifunctional test scenarios. Evasive maneuvers are used to support the test engineers in increasing safety and efficiency by avoiding / mitigating collisions. With the ISO interface (ISO 22133 WD) the robot infrastructure and the robots themselves can be connected with third party test equipment. It enables flexible monitoring and control.

SOFTWARE

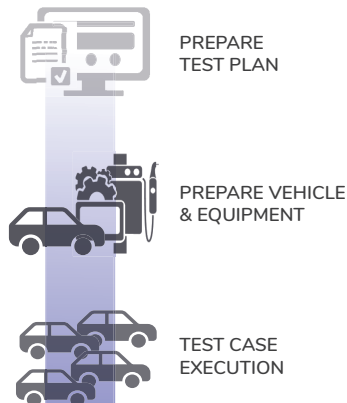


OPTIMIZED ADAS WORKFLOW

In cooperation with AVL, Humanetics has designed an optimized workflow for proving ground testing which supports customers in their daily challenges. This comprehensive prepackaged Suite is intended to simplify and streamline future ADAS test procedures while saving time and cost. In addition to the software side, the ADAS Suite also includes the UFO Target Carrier and DrivingRobot.

Test Preparation - Execution

- » A wide range of preconfigured test scenarios utilizing UFO target carrier and/or DrivingRobot are part of the library (Euro NCAP and others)
- » Scenarios are adapting based on data input from test engineer (ex: overlap based on vehicle's width)
- » Robots are self-calibrated
- » Functions for testing efficiency: automatic return to start



Test Evaluation - Reporting

- » Instant validation of the test case
- » Test plan is automatically identified in order to eliminate potential human errors
- » Automated report generation with standardized set of NCAP report templates, which can also be adapted according to customer requirements

Key Features

- » Intuitive graphical user interface with test simulation and online monitoring of UFO target carrier and/or DrivingRobot position
- » Monitors multiple UFOs and/or DrivingRobots from one operator source simultaneously for swarm testing
- » Visual meeting/crash point configurator
- » Live raw-data monitoring
- » On-board controller
- » Distinctive control algorithms (velocity, way, synchronized to VUT)
- » PMC file importer (ABD driving robots)
- » Data outputs: Logfile after test, CAN live data output, NCOM stream live output
- » Virtual fence provides additional safety precaution
- » UFObase Script language (UBS)
- » ISO interface (ISO22133 WD) monitoring and control

PRODUCT PACKAGE OVERVIEW

| | UFO nano target carrier | UFO micro target carrier | UFO pro target carrier | UFO pro Black Series target carrier | DrivingRobot | Robot Infrastructure Set |
|---|------------------------------------|------------------------------------|--|--|---|--|
| dGPS Unit | <i>SBG systems (OxTS OEM 1003)</i> | <i>SBG systems (OxTS OEM 1003)</i> | <i>OxTS OEM with Glonass (Genesys ADMA slim)</i> | <i>OxTS OEM with Glonass (Genesys ADMA slim)</i> | <i>OxTS OEM with Glonass (Genesys ADMA)</i> | <i>RTK correction data interface NTRIP correction data interface</i> |
| Printed user manual | ● | ● | ● | ● | ● | ● |
| First steps video guides | ● | ● | ● | ● | ● | ● |
| Tools and spare parts box | ● | ● | ● | ● | ● | — |
| Swappable high capacity batteries / pcs | ● 4 | ● 2 | ● 2 | ● 3 | ● 1 | — |
| Chargers / pcs | ● 2 | ● 2 | ● 2 | ● 3 | ● 1 | — |
| UFObase Software | ○* | ○* | ○* | ○* | ● on Tablet in Vehicle | ● on Rugged Outdoor Computer |
| Control panel | ○* | ○* | ○* | ○* | ○ | ● |
| WiFi access point (Rocket) | ○* | ○* | ○* | ○* | ○ | ● |
| Vehicle box kit | ○* | ○* | ○* | ○* | ○ | ● |
| DrivingRobot box | ○ | ○ | ○ | ○ | ● | ○ |
| ISOFIX for box in vehicle | ○* | ○* | ○* | ○* | ● | ● |
| Lightgate synchronisation software | ○* | ○* | ○* | ○* | ● | ● |
| Full Synchronisation Software | ○ | ○ | ○ | ○ | ○ | ○ |
| Data link software | ○ | ○ | ○ | ○ | ○ | ○ |
| Predifined NCAP Scenarios & Automatic Evaluation Tool | ○ | ○ | ○ | ○ | ○ | ○ |
| Range functionality | ○ | ○ | ○ | ○ | ○ | ○ |
| UFO as master vehicle | ○ | ○ | ○ | ○ | ○ | ○ |
| Advanced scenario scripting - simulation interface | ○ | ○ | ○ | ○ | ○ | ○ |
| Friction compensation mode | — | — | — | — | ○ | — |
| AVAD compatibility | — | — | — | — | ○ | — |
| UFObase Script language (UBS) | ○ | ○ | ○ | ○ | ○ | — |
| ISO nterface | ○ | ○ | ○ | ○ | — | — |

Key: ● = Included ○ = Available as Add-On Option — = Not Available

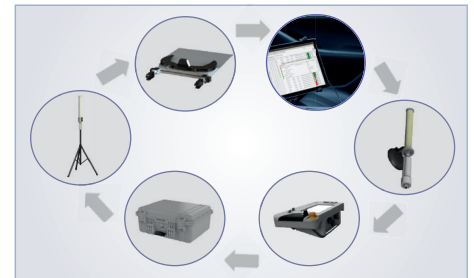
*Robot Infrastructure Set and UFObase Control Software is needed to operate the product.
One Robot Infrastructure and UFObase Control Software can operate multiple UFOs and DrivingRobots.

ROBOT INFRASTRUCTURE

1 Robot Infrastructure Set

#UFO-1-8550

- » Contains Mobile Access Point
- » Rugged outdoor control computer
- » Vehicle box
- » Rocket with Tripod
- » VUT Bullet
- » Isofix
- » Control Panel
- » UFObase Software licence, which can control multiple robots
- » Speed Trap synchronization of UFO robots with VUT basic set
- » Manually triggered test
- » Bird view
- » Test set up and basic evaluation tool
- » Enables fast testing for realistic test scenarios



See the Robot Infrastructure and UFObase Control Software in action.



DGNSS correction signal to be supplied by customer; optional choose UFO-1-8050

1.1 Mobile Access Point

#VUFO-1-8140

- » Enhances the communication between robots on the proving ground
- » Enables fast testing for realistic test scenarios



See the Access Point in action.



ROBOT INFRASTRUCTURE

1.2 Tripod with Warning Light and Buzzer

#UFO-1-8010

- » Foldable Tripod with warning sign
- » Flashing warning light and warning buzzer (active when UFO is armed)
- » Charger and software incl.
- » Static object box with two connection ports
- » WiFi connection
- » Battery powered



1.3 Traffic Light

#UFO-1-8035

- » Test-ready indicator
- » Can be programmed for driver's view: indicating green (go) when the UFO target carrier is ready; and spectator's view: indicating red (do not enter) while the UFO target carrier is in operation
- » Charger and software incl.
- » Static object box with two connection ports
- » WiFi connection
- » Battery powered



See the Traffic Light
in action.



1.4 Pedestrian Trigger Box Set

#UFO-1-2050

- » Allows the control of 4a remote controller directly from Humanetics software
- » Charger and software incl.
- » WiFi connection
- » Battery powered
- » Automatic triggering of pedestrian articulation
- » Incl. 4a remote controller
- » Delivers most accurate synchronisation in the movement of VRU dummies

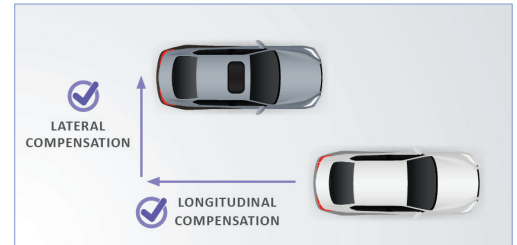


SOFTWARE

2.1 Full Synchronization Software

#UFO-1-9010

- » Includes longitudinal and lateral synchronization
- » Speed of UFO target carrier is synchronized with test vehicle speed at all times (for accurate point of impact)
- » Enables maximum accuracy and repeatability of longitudinal and lateral test scenarios



See the Full Synchronization Software in action.



2.2 Data Link Software

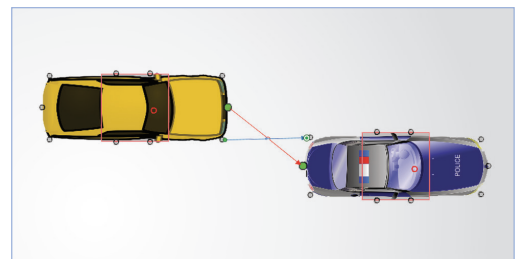
#UFO-1-9030

- » The data from the robot can be transferred directly to the VUT during the test through a CAN port (either through the vehicle box or through the DrivingRobot box).
- » Includes CAN-DBC file

2.3 Euro NCAP 2020 Scenario Library & Range Functionality

#UFO-1-9120

- » Possibility to define specific measurement points on the robots and VUT
- » Library:
 - Includes all Euro NCAP 2020 scenarios for Humanetics platforms and DrivingRobots
 - Compatible with manually driven and third party driving robot operated VUTs
 - Integration with third party testing systems on request
 - Included Wizard guides you through setting up scenarios in seconds
- » Range:
 - Possibility to define specific measurement points on the robots and VUTs
 - Real-time display of distances between measurement points
 - Includes longitudinal synchronization between test robots



See the Range Functionality & Predefined Scenario Library in action.

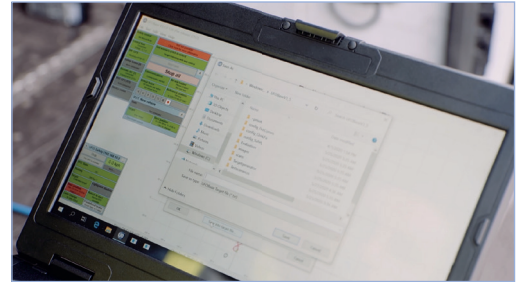


SOFTWARE

2.4 Test Evaluation and Reporting Suite – UFO Only Version

#UFO-1-9140

- » Includes 2.3 Euro NCAP 2020 Scenario Library & Range Functionality
- » Validates and evaluates test results for Euro NCAP 2020 scenarios
- » Evaluation possible with third party testing systems on request
- » Automatically generates Euro NCAP conform MME reports
- » Scenarios to be conducted with UFO target carrier and Humanetics vehicle box
- » For the evaluation and reporting of scenarios involving the Humanetics DrivingRobot also 2.5 required



2.5 Test Evaluation and Reporting Suite – DrivingRobot Upgrade

#UFO-1-9150

- » Includes 2.3 Euro NCAP 2020 Scenario Library & Range Functionality
- » Validates and evaluates test results for Euro NCAP 2020 Scenarios
- » Automatically generates Euro NCAP conform MME reports
- » Scenarios to be conducted with UFO target carrier and Humanetics vehicle box

See the Test Evaluation & Reporting Suite in action.



2.6 UFO as Master Vehicle

#UFO-1-9160

- » This allows the Humanetics UFO target carrier to be also used as leading vehicle with the DrivingRobot as the following vehicle
- » Enables to conduct scenarios also with limited space on the proving ground

See the UFO target carrier as Master Vehicle in action.



2.7 Advanced Scenario Scripting - Simulation Interface

#UFO-1-9170

- » Allows the scripting of scenarios with advanced functions
- » New way to define test scenarios with multiple test phases
- » Allows the user to arrange very complex scenarios

See the Advanced Scenario Scripting in action.

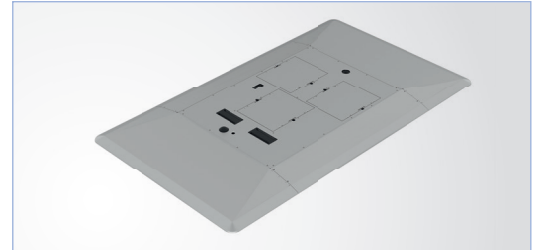


UFOpro / BLACK SERIES TARGET CARRIER

3-pro UFOpro - Robot Only

#UFO-20-ROBOT

- » UFOpro target carrier incl.:
 - GNSS Unit
 - Spare part box
 - Tool box
 - Battery transport box
- » External GNSS antenna including fast detachment compatible with GVT
- » Standard ramps to support GVT
- » Standard cover plate
- » Two batteries; three battery slots; two chargers



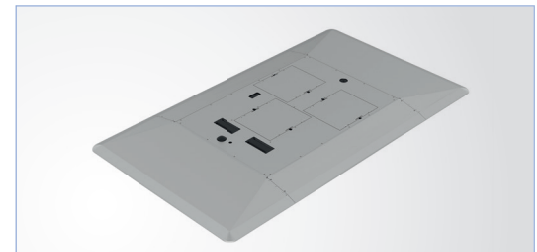
See the UFOpro target carrier in action.



3-BS UFOpro Black Series - Robot Only

#UFO-30-ROBOT

- » UFOpro target carrier incl.:
 - GNSS Unit
 - Spare part box
 - Tool box
 - Battery transport box
- » External GNSS antenna including fast detachment compatible with GVT
- » Standard ramps to support GVT
- » Three batteries; three battery slots; three chargers



See the UFOpro BlackSeries target carrier in action.



3.1 UFOpro / pro Black Series -Heavy Duty Version

#UFO-TRUCK-UPGRADE

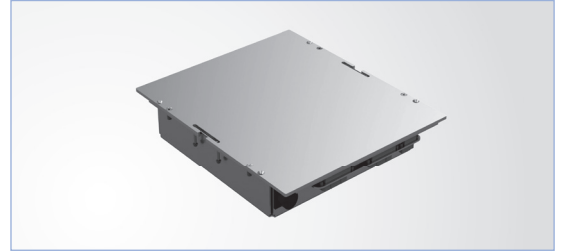
- » Special Heavy Duty:
 - Ramps instead of standard ramps
 - Battery covers instead of standard covers
 - Cover plate instead of standard cover plate for increased robustness
- » Over run hight + 2 mm
- » Increased weight 22 kg

UFOpro / BLACK SERIES TARGET CARRIER

3.2 -pro UFOpro - Battery Set

#UFO-1-3120

- » Two batteries with transport box
- » UN 38.3 certified
- » Voltage 52.8 V
- » Capacity 1,94 kWh/set
- » Cell type LiFePo4



3.2 -BS UFOpro Black Series - Battery Set

#UFO-1-3130

- » Three batteries with transport box
- » UN 38.3 certified
- » Voltage 52.8 V
- » Capacity 2,91 kWh/set
- » Cell type LiFePo4

See the the easy battery swap in action?



3.3 -pro UFOpro - Truck Version Battery Set

#UFO-1-3140

- » Two reinforced UFO batteries with transport box

3.3 -BS UFOpro Black Series - Truck Version Battery Set

#UFO-1-3150

- » Three reinforced UFO batteries with transport box

UFOpro / BLACK SERIES TARGET CARRIER

3.4 ABS Upgrade

#UFO-ABS-UPGRADE

- » Rotary encoders, mounted on front tyres
- » For reduced flat spots and controlled deceleration
- » Can be installed either in UFOpro or *Black Series*
- » Special control algorithm to deliver best accuracy during deceleration to avoid flat spots on tyres for an increased lifetime of tires

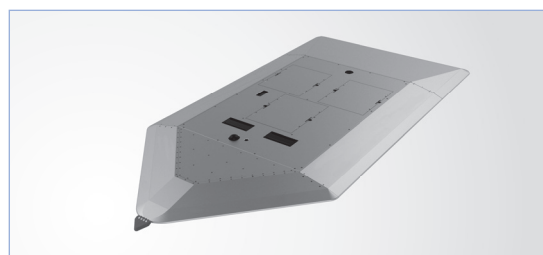
See the ABS Upgrade
in action.



3.5 Arrow Ramp Set

#UFO-1-1040-0042

- » Designed for side impact scenarios (UFO with GVT crashing into side of VUT)
- » Designed to slide smoothly under vehicle tire
- » Arrow Ramp for exchange of standard front ramp for UFOpro/ UFOpro *Black Series*
- » Arrow Ramp frame from aluminum for passenger car overrun
- » Wear parts



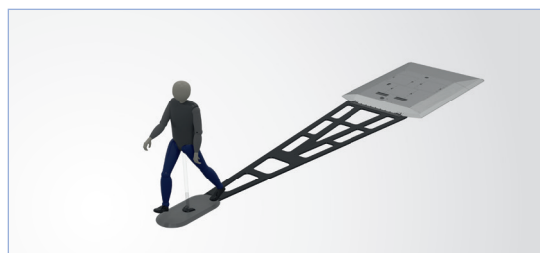
See the Arrow Ramp
Set in action.



3.6 VRU Kit

#UFO-1-1060

- » Dummy mounting platform for articulating pedestrian dummies and bicycles
- » To push/pull a pedestrian dummy or bicycle dummy by the UFO target carrier
- » For linear trajectories
- » For UFOpro and UFOpro *Black Series*
- » Articulation can be triggered by UFObase Software
- » One VRU arm with magnets and U-shaped connector for articulated and bicycle dummies
- » One ramp with integrated clamping mechanism incl. overload protection
- » One overrunable GNSS antenna for UFO target carrier
- » One Pedestrian Trigger Box Set for connecting 4a dummy
- » Dummy is not included. See pedestrian dummy



DrivingRobot

4 DrivingRobot

#UFO-5-SET

- » Standard mounting platform
- » Steering mechanics applied on original steering wheel
- » Steering and lateral path following software
- » Pedal mechanics
- » Pedal control and longitudinal path following software
- » GNSS unit OxTS RT (dual antenna – incl. mounting strat)
- » One dGNSS antenna for mounting on the vehicle incl. additional antenna base discs for glas roofs

Please note: DGNSS correction data to be supplied by customer; optional choose 8.1, 8.2. or UFO-1-8550 + UFO-1-8050

- » Wifi communication equipment
- » Tool set
- » One 48 V lithium battery pack for independent power supply
- » One lithium battery charger
- » Optimized for ADAS / AV testing protocols
- » ISOFIX connector for DrivingRobot box



4.1 DrivingRobot Friction Compensation Upgrade

#UFO-1-9190

- » Possibility to activate friction compensation mode in test scenarios where the steering is actively intervening. Can be tuned in several modes.

See the Friction Compensation Upgrade in action.



4.2 Audiovisual Alarm Detection (AVAD) Interface

#UFO-1-9180

- » Signals from AVAD System are sent to Humanetics Software and used for advanced scenarion control (CCRB FCW)
- » Trigger signal from AVAD are safed as part of Humanetics result files
- » Possibility to integrate AVAD 3 with Humanetics DrivingRobot

4.3 Audiovisual Alarm Detection in VUT

#UFO-1-8510

- » Includes 4.2 AVAD compatibility
- » AVAD 3 system from DTC
- » Detector for audio-visual signals from the vehicle (AVAD 3 v4)
- » Windshield mounting kit
- » Audiovisual controller and detection software
- » Color and pattern recognition



UFO nano TARGET CARRIER

5 UFO nano - Robot Only

#UFO-9-ROBOT

- » UFO nano robot incl. GNSS unit
- » UFO nano handles
- » Two sets of batteries and two chargers incl.
- » UFO nano tool and spare part box
- » UFO nano transport box
- » U shaped dummy interface included
- » Including SBG dual antenna dGNSS unit



5.1 UFO nano Oxts version

#UFO-9-OXTS-UPGRADE

- » RT1003 instead of SBG GPS unit

5.2 UFO nano Battery Set

#UFO-1-3160

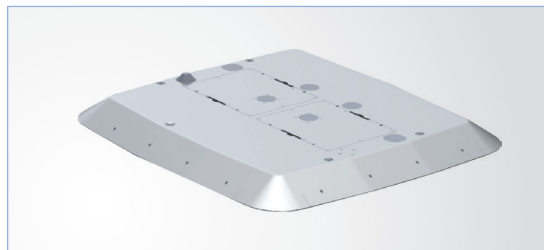
- » One Battery Set includes 2 battery pieces

UFOmicro TARGET CARRIER / TRAINING OPTIONS

6 UFOmicro – Robot Only

#UFO-8-ROBOT

- » UFOmicro robot incl. GNSS unit
- » Two chargers and two batteries incl.
- » UFOmicro tool and spare part box
- » Designed for PTW testing



6.1 UFOmicro – VRU Extension

#UFO-8-VRU-EXTENSION

- » UFOmicro can be used also with VRU targets

7.1 Online Training at Delivery

#UFO-1-7200

- » Detailed user manual
 - » Best practice guidelines and Installation videos
 - » Online Training incl.
 - » Included with each robot*
- » Good internet connection at proving ground is required
- * Portable Video device for Microsoft Teams Meeting is recommended

7.2 Factory Delivery*

#UFO-1-7160

- » Detailed user manual
 - » Best practice guidelines
 - » Installation videos
 - » Visit to the Linz Humanetics active safety development center
- » Theoretical training
 - » Sessions on the proving ground
- *Price: on demand

7.3 Elite Delivery*

#UFO-1-7210

- » Detailed user manual
 - » Best practice guidelines
 - » Installation videos
 - » Humanetics training engineers visiting customer site and delivering training
- » Theoretical training
 - » Sessions on the proving ground
- *Price: on demand

DGNSS POSITIONING SYSTEMS / BASE STATIONS

8.1 DGPS Base Station - Standalone

#UFO-1-8040

- » Two Satel modems for Europe incl., for other regions on request
- » RCTMv3 correction data for all the Humanetics robots involved in testing
- » Integrated battery and bharger incl.
- » OxTS RT-Base S, GNSS antenna and tripod incl.

8.2 NTRIP Interface

#UFO-1-8560

- » Possibility to receive NTRIP correction data
- » Other NTRIP client on request
- » Lefebure NTRIP client (others on request)
- » OxTS RT-Base S, GPS antenna and tripod incl.

**Local NTRIP data stream subscription not included*

8.3 DGPS Base Station - Control Box Extension for UFO

#UFO-1-8050

- » Requires Pos. 1: Robot Infrastructure Set
- » Integrated dGNSS receiver
- » dGNSS correction data is distributed within the UFO WiFi system (radio modem not required)
- » dGNSS unit (Novatel) mounted inside Control Box
- » Glonass incl.
- » GNSS antenna on tripod with TNC cable
- » Settings via UFO Control Laptop

8.4 DGPS Unit for VUT including Mounting Kit

#UFO-1-8570

- » GNSS/IMU from OxTS (up to 2 cm accuracy)
- » Glonass incl.
- » dGNSS antenna for vehicle mounting
- » Connection to vehicle box for correction data (RS-232)
- » IMU Mounting Kit
#UFO-1-82600 [for RT1000 and RT2000 and 3000 Series]
 - Strut for fixation of the IMU unit in car
 - Brackets for mounting the IMU unit
 - Flexible adjustment for different roof to floor distances
 - Clamping between roof and floor
 - Compatible with OxTS 3000 Series



DUMMY OPTIONS

9.1 Global Vehicle Target (GVT) - UFO Version

#UFO-1-5110

- » Compatible with UFOpro and UFOpro *Black Series*
- » Soft car target GVT for UFOpro
- » Modeled after Ford Fiesta
 - Realistic – replicates radar and visual properties of a real car
- » Photorealistic vinyl skin with radar material
- » Vinyl covered internal bulkheads
- » Full-diameter wheels with custom radar reflectors
- » Front, rear and side skirts with integrated radar absorbing material
- » Side mirrors with metallic material and side mirror supports
- » Windscreen support piece
- » Plastic stiffeners in the skins
- » Reflective lights
- » Manufactured by DRI advanced systems
- » User manual incl.



9.2 Static stand for Global Vehicle Target (GVT) - UFO Version

#UFO-1-5080

- » To perform tests without UFO
- » Foam stripes with UFO geometry to support GVT

9.3 Inflatable 3d Dummy -For Active Side Crashes

#UFO-1-5090

- » Inflatable tubular structure
- » Softshell cover
- » Vehicle optic cover
- » Interface for mounting on UFO using proven Velcro system
- » Crashable up to 80 km/h differential speed
- » Perfect for side impact crashes due to its light weight and flexibility (does not deploy airbag)
- » Air compressor included
- » Repair kit included
- » Available colors: grey, white, blue or red
- » Compatible with UFOpro and UFOpro *Black Series*
- » User manual incl.



DUMMY OPTIONS

9.4 Bicycle Dummy fo Euro NCAP

#UFO-1-5030

- » Full adult bicycle dummy package includes: bicycle, human dummy, 3x wheels, 15x spokes
- » Compliant with Euro NCAP VRU testing protocols
- » Rotating wheels
- » Adjustable torso position (aero, upright)
- » Crashable up to 60 km/h
- » Water resistant

- » Manufactured by 4active Systems (4a)
- » User manual incl.

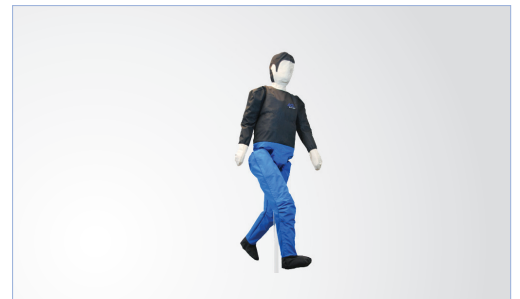


9.5 Pedestrian Dummy - Adult Articulating

#UFO-1-5050

- » Euro NCAP - compliant adult pedestrian dummy
- » Replicates human properties in size and shape, with articulating legs
- » Weight less than 4 kg
- » Articulated EPT – Euro NCAP pedestrian target
- » Homogeneous distribution of radar cross section (RCS)
- » Visual signature – mono and stereo camera
- » Crashable up to 60 km/h
- » Water resistant

- » Manufactured by 4active Systems (4a)



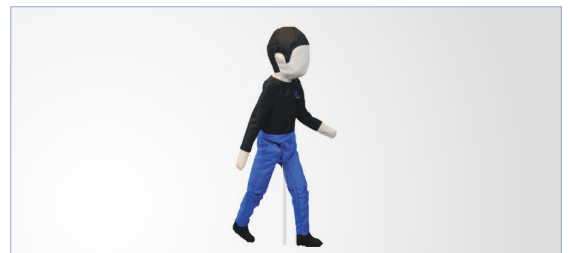
*Articulation with UFO-1-2050 Pedestrian trigger Box or 4a remote controller to be provided by customer

DUMMY OPTIONS

9.6 Pedestrian Dummy - Child Articulating

#UFO-1-5070

- » Euro NCAP-compliant child pedestrian dummy
- » Represents a 7-year-old child with articulating legs
- » Weight less than 2kg
- » Articulated EPT – Euro NCAP pedestrian target
- » Homogeneous distribution of radar cross section (RCS)
- » Visual signature – mono and stereo camera
- » Crashable up to 60 km/h
- » Water resistant
- » Manufactured by 4active Systems (4a)
- » User manual incl.



*Articulation with UFO-1-2050 Pedestrian trigger Box or 4a remote controller to be provided by customer

9.7 PTW Dummy

#UFO-1-5140

- » Corresponding to category L3 as applied by UNECE
- » Realistic properties in size and shape and rotational features
- » Compliant to ISO 19206-5 WD, Euro NCAP
- » Compatible with UFOmicro target carrier
- » Weight 15kg
- » Crash speed lateral up to 60 km/h / longitudinal up to 50 + 20 km/h
- » User manual incl.

9.8 Scooter Dummy

#UFO-1-5150

- » Compatible with UFOmicro target carrier
- » Weight 15kg
- » Crash speed lateral up to 60 km/h / longitudinal up to 40 km/h
- » Corresponding to category L3e-A1 as applied by UNECE

9.9 Playing Child Target (PCT)

#UFO-1-5180

- » Target in the shape of a two-year-old child sitting on a play car
- » Available in different default colors
- » Compatible with UFO nano target carrier
- » Dimension: 680 x 580 x 360 mm | Weight: 2.2 kg



Image: MESSRING GmbH

UFO TRANSPORTATION OPTIONS

9.10 AEB VRU Target - ASTERA E-Scooter

#UFO-1-5190

- » Target in the shape of a young woman (P50 median female)
- » Compatible with UFO nano target carrier
- » Realistic sensor response for radar, camera, lidar, ultrasound and IR
- » Dimension: 1660 x 1050 x 415 mm | Weight: 5.6 kg

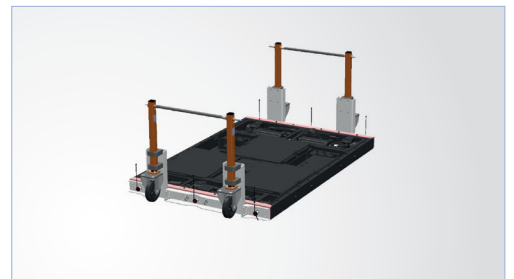


Image: MESSRING GmbH

10.1 One Man Mover

#UFO-1-6020

- » For UFOpro and UFOpro Black Series
- » Transportation tool for UFOpro and UFOpro Black Series
- » Lifting UFO up to 200 mm
- » Transporting UFO over steps and into trailers
- » Operation and handling by one person



10.2 UFOpro Service Carrier

#UFO-1-6060

- » Manual hydraulic lifting device for transportation; can be used as a service table
- » Net weight: 138 kg | Carrying capacity: 500 kg
- » Dimension (table top): 800x1600 mm
- » Lifting height: 310 - 900 mm
- » Stroke/step: 25 mm
- » For for UFOpro, UFOpro Black Series and UFOmicro



PRODUCT LIST

| POS | PART NUMBER | DESCRIPTION |
|------------------------------|-------------------|--|
| ROBOT INFRASTRUCTURE | | |
| 1 | UFO -1-8550 | Robot Infrastructure Set |
| 1.1 | VUFO-1-8140 | Mobile Access Point |
| 1.2 | UFO-1-8010 | Tripod with Warning Light and Buzzer |
| 1.3 | UFO-1-8030 | Traffic Light |
| 1.4 | UFO-1-2050 | Pedestrian Trigger Box Set |
| SOFTWARE | | |
| 2.1 | UFO-1-9010 | Full Synchronization Software |
| 2.2 | UFO-1-9030 | Data Link Software |
| 2.3 | UFO-1-9120 | Euro NCAP 2020 Scenario Library & Range Functionality |
| 2.4 | UFO-1-9140 | Test Evaluation and Reporting Suite – UFO Only Version |
| 2.5 | UFO-1-9150 | Test Evaluation and Reporting Suite – DrivingRobot Upgrade |
| 2.6 | UFO-1-9160 | UFO as Master Vehicle |
| 2.7 | UFO-1-9170 | Advanced Scenario Scripting - Simulation Interface |
| UFOpro / BLACK SERIES | | |
| 3-pro | UFO-20-ROBOT | UFOpro Robot Only |
| 3-bs | UFO-30-ROBOT | UFOpro Black Series Robot Only |
| 3.1 | UFO-TRUCK-UPGRADE | UFOpro / Black Series - Heavy Duty version |
| 3.2-pro | UFO-1-3120 | UFOpro - Batteries Set |
| 3.2-bs | UFO-1-3130 | UFOpro Black Series - Battery Set |
| 3.3-pro | UFO-1-3140 | UFOpro -Truck Version Battery Set |
| 3.3-bs | UFO-1-3150 | UFOpro Black Series - Truck Version Battery Set |
| 3.4 | UFO-ABS-UPGRADE | ABS Upgrade |
| 3.5 | UFO-1-1040-0042 | Arrow Ramp Set |
| 3.6 | UFO-1-1060 | VRU Kit |
| DrivingRobot | | |
| 4 | UFO-5-SET | DrivingRobot |
| 4.1 | UFO-1-9190 | DrivingRobot Friction Compensations Upgrade |
| 4.2 | UFO-1-9180 | AVAD Interface |
| 4.3 | UFO-1-8510 | Audiovisual Alarm Detection in VUT |

PRODUCT LIST

| POS | PART NUMBER | DESCRIPTION |
|--|---------------------|--|
| UFO nano | | |
| 5 | UFO-9-ROBOT | UFO nano Robot Only |
| 5.1 | UFO-9-OXTS-UPGRADE | UFO nano Oxts version - OXTS |
| 5.2 | UFO-1-3160 | UFO nano Battery Set |
| UFO micro | | |
| 6 | UFO-8-ROBOT | UFO micro Robot Only |
| 6.1 | UFO-8-VRU-EXTENSION | UFO micro VRU Extension |
| TRAINING OPTIONS | | |
| 7.1 | UFO-1-7200 | Online Training at Delivery |
| 7.2 | UFO-1-7160 | Factory Delivery |
| 7.3 | UFO-1-7210 | Elite Delivery |
| DGNSS POSITIONING SYSTEMS AND BASE STATIONS | | |
| 8.1 | UFO-1-8040 | DGPS Base Station - Standalone |
| 8.2 | UFO-1-8560 | NTRIP Interface |
| 8.3 | UFO-1-8050 | DGPS Base Station - Control Box Extension for UFO |
| 8.4 | UFO-1-8570 | DGPS Unit for VUT including Mounting Kit |
| DUMMY OPTIONS | | |
| 9.1 | UFO-1-5110 | Global Vehicle Target (GVT) - UFO Version |
| 9.2 | UFO-1-5080 | Static Stand for Global Vehicle Target (GVT) - UFO Version |
| 9.3 | UFO-1-5090 | Inflatable 3D Vehicle Dummy - For Active Side Crashes |
| 9.4 | UFO-1-5030 | Bicycle Dummy fo EURO NCAP |
| 9.5 | UFO-1-5050 | Pedestrian Dummy - Adult Articulating |
| 9.6 | UFO-1-5070 | Pedestrian Dummy - Child Articulating |
| 9.7 | UFO-1-5140 | PTW Dummy |
| 9.8 | UFO-1-5150 | Scooter Dummy |
| 9.9 | UFO-1-5180 | Playing Child Target (PCT) |
| 9.10 | UFO-1-5190 | AEB VRU Target - ASTERA E-Scooter |

PRODUCT LIST

| POS | PART NUMBER | DESCRIPTION |
|----------------------------|-------------|------------------------|
| UFO TRANSPORTATION OPTIONS | | |
| 10.1 | UFO-1-6020 | One Man Mover |
| 10.2 | UFO-1-6060 | UFOpro Service Carrier |

All designated referred to as UFO, are describing UFO target carrier incl. UFOpro target carrier, UFOpro Black Series target carrier, UFOnano target carrier and UFOmicro target carrier.

All prices are in EUR and do not contain any taxes or duties. All products are designed and produced according to European standards. Buyer is responsible for compliance with local safety and environmental requirements.

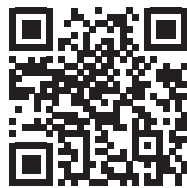
If you are interested in learning more about our products or would like to witness a live demonstration, please do not hesitate to contact your local sales representative or write us an e-mail at sales.austria@humaneticsatd.com.

If you have questions regarding your existing Humanetics active safety products, please reach out to our support team. Our support team can be reached monday to thursday from 8:30 a.m. to 5:00 p.m. and friday from 8:30 a.m. to 12:00 p.m.

Support Team

Hotline: +43 732 343 2001

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