



# Andres Industries AG

defence branch

## Defence Catalog



*TIMRO - aiShell - X-Shut - RAM-Mount - Grappling System*

# TIMRO 640M - Three in one

head- / hand- / weapon-mounted  
thermal imaging monocular



TIMRO is the first thermal imaging device that was designed from its inception as a 3-in-1 weapon sight, head-mounted and hand-held monocular and achieves the highest performance levels in each of these fields of application in comparison with other thermal imaging devices. This was made possible by the use of cutting-edge technology.

#### Optronics:

The high performance optotronic lens guarantees a resolution of 640x480 and a 38 degree field of view. It not only has an image four times sharper than the best systems currently available on the market, but the TIMRO's electronic filter also allows very good orientation. Depending upon requirements, the user can focus on searching for people or alternatively on orientation in indoor environments with poor visibility.

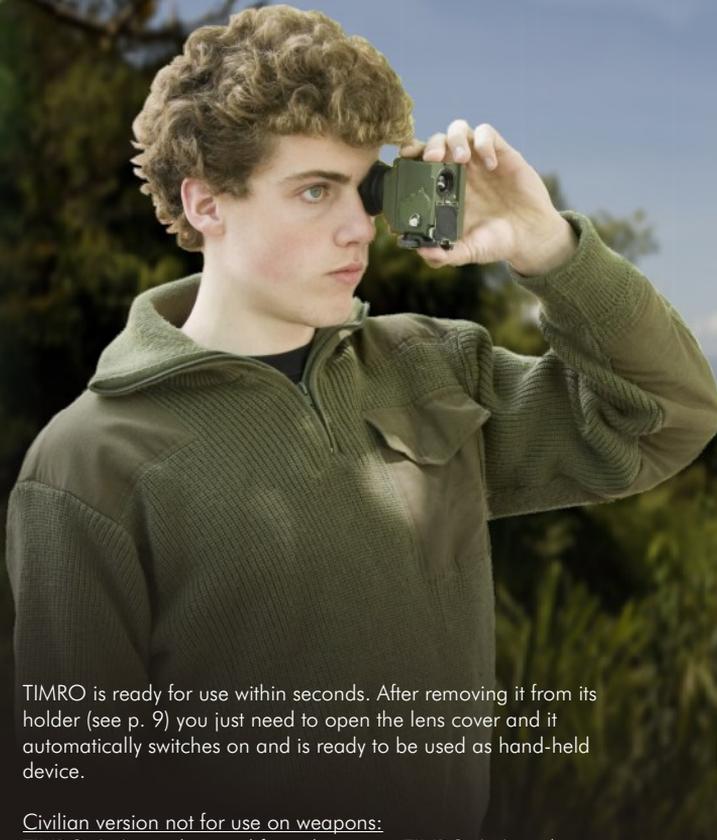
#### Weight and strength:

Modern laser cusing methods have made it possible to use titanium to produce a very small, extremely lightweight and robust body. This means it can be used as a weapon-mounted thermal imaging aiming device.

However setting standards was not our only goal. We wanted to create a system that fits smoothly into the everyday life of the user. Extensive settings are possible with the TIMRO remaining clear and simple to use "in-the-field". Many practical details add to its efficiency, such as the vest clip, which ensures the TIMRO is always within easy reach yet can still be transported securely.

# 1. The hand-held operation

## *small and handy*



TIMRO is ready for use within seconds. After removing it from its holder (see p. 9) you just need to open the lens cover and it automatically switches on and is ready to be used as hand-held device.

Civilian version not for use on weapons:

TIMRO 640m is designed for military use, TIMRO 640z is the civilian version.

In accordance with German gun control laws, TIMRO 640z is not equipped with a STANAG mount. This means the device can be used as a head-mounted or hand-held monocular but cannot be attached to a weapon. The TIMRO 640z also has no crosshair overlay.

Unauthorized modification to allow the system to be mounted upon a weapon is a punishable offence in Germany. Such modifications will also lead to the warranty being invalidated.



## **X-Shut Clip**

### *quick, secure and handy*

Due to its titanium body, TIMRO is waterproof and practically indestructible, not requiring a special pouch. As with all other components, the belt or vest clip is an essential part of an integrated system. It is based on the X-Shut system. So you can mount the TIMRO at the vest or belt clips or any other X-Shut base. Find more at page 21.

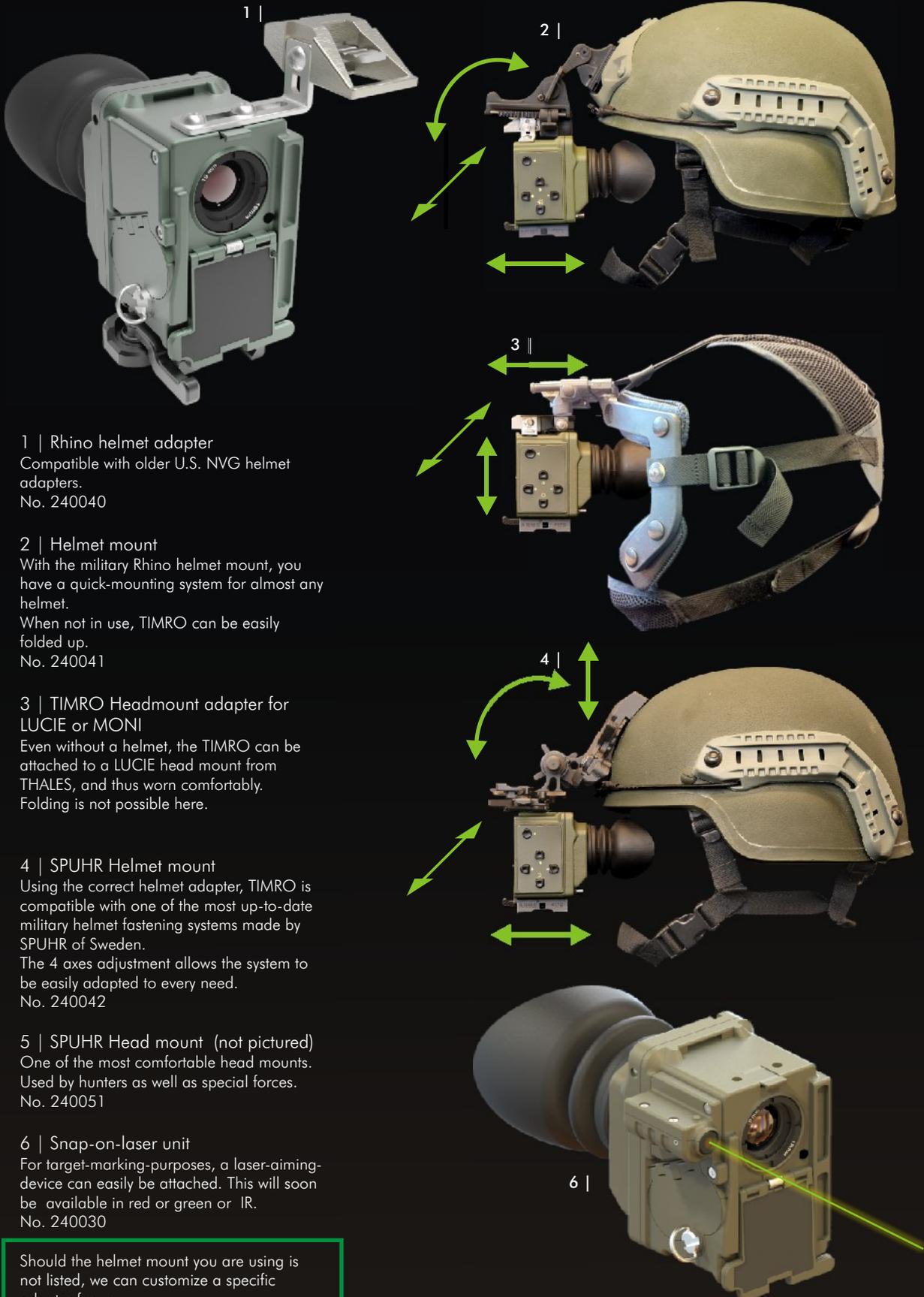
## 2. Use as a head-mounted thermal imaging viewer

Its weight and size mean that TIMRO is one of the lightest and smallest thermal imaging viewers on the market. All functions, such as zoom and filter settings, are of course available when using TIMRO as a viewer.

### Advantages:

- > extremely low weight and compact size. TIMRO is 7 cm long, up to 5 cm shorter than comparable devices. Its weight at 220g is some 100g less than many of the lightest residual light amplifiers on the market.
- > large field of view (>38° diagonal)
- > digital detail enhancement for better orientation in the field and in dark or smoke-filled interiors. This is particularly advantageous as detail enhancement allows the user to partially replace the functions of a night vision device, the technology allowing for an increase in contrast between objects of similar temperature.
- > Use while attached to a helmet. Compatible with all helmet mounts on the market.
- > Quick Snap System:  
It only takes seconds to fasten the night vision device to a helmet mount. Removal is just as quick, allowing for its use as a handheld system or weapon-mounted.
- > Laser marking option:  
Either the infrared laser or the red laser can be used to mark targets for non-thermal night vision devices.





1 | Rhino helmet adapter  
Compatible with older U.S. NVG helmet adapters.  
No. 240040

2 | Helmet mount  
With the military Rhino helmet mount, you have a quick-mounting system for almost any helmet.  
When not in use, TIMRO can be easily folded up.  
No. 240041

3 | TIMRO Headmount adapter for LUCIE or MONI  
Even without a helmet, the TIMRO can be attached to a LUCIE head mount from THALES, and thus worn comfortably.  
Folding is not possible here.

4 | SPUHR Helmet mount  
Using the correct helmet adapter, TIMRO is compatible with one of the most up-to-date military helmet fastening systems made by SPUHR of Sweden.  
The 4 axes adjustment allows the system to be easily adapted to every need.  
No. 240042

5 | SPUHR Head mount (not pictured)  
One of the most comfortable head mounts. Used by hunters as well as special forces.  
No. 240051

6 | Snap-on-laser unit  
For target-marking-purposes, a laser-aiming-device can easily be attached. This will soon be available in red or green or IR.  
No. 240030

Should the helmet mount you are using is not listed, we can customize a specific adapter for you.

### 3. Use as a weapon-mounted thermal image sighting device (TIMRO 640m, military and law enforcement only)

#### Weapon-mount

Even when TIMRO is worn as a viewer, it only takes seconds to detach it from the helmet and attach it to a MIL-STD 1913 Picatinny with its optional STANAG-mount. Within moments you have a thermal image sighting device.

- > a choice of reticles.
- > zoom up to 8x.
- > electronically adjustable
- > target engagement from up to 200 m
- > weapons database



mount for MIL-STD 1913 Picatinny made by RECKNAGEL, Germany (A.R.M.S. #17S also available)



#### **Supply to authorities only**

The TIMRO 640m with weapons assembly and reticle option is only available to government authorities in Germany and to customers outside Germany with BAFA approval.

**Corner-view:**

TIMRO is equipped with video output and video input, allowing two TIMROs to be combined. Therefore one device can display images from the other. For example, one TIMRO can be mounted on a rifle as a weapon sight while the other is attached to the helmet. After pressing the corner-view button, you will be able to "see" everything through the weapon sight, including reticle and zoom functions.

This allows the operator, in a CQB scenario for example, to look into a building or around a corner without exposing himself to the line of fire. The only accessory required is the appropriate cable to connect the two devices.

If you press the corner-view button again, the corner-view function will be closed and the TIMRO on the helmet will revert to its own view. Users can switch between operating modes in seconds.

Corner-view mode retains all standard TIMRO functions.

**Video recording:**

The video output can also be connected to a commercially available recording device.

**Bottom-Top function:**

In certain situations, the use of handguns is more convenient.

Since these usually only have a STANAG-rail below the barrel, the bottom-top function is used.

This is an additional function of the corner-view mode. In order to use handguns with the TIMRO in corner-view mode, it is possible to change the settings to suit the selected weapon and also its view orientation allowing the TIMRO to be mounted upside-down. However, the picture remains right-side-up for the user.

**Einstellungen**

```
MASADA 1
MASADA 2
GLOCK
neu ...
Einstellungen
```

**Weapons database:**

Special Forces in particular tend to use fewer standardized weapons. The database allows for settings for up to six weapons to be saved.

Even if only one TIMRO is available for a whole squad, it can be shared between soldiers after weapons settings have been saved.

Settings for weapons are made in the same submenu that is used for filter settings and zoom options.

# EMMA

## External Monocular Monitor Accessory

The EMMA-TIMRO combination is an ultra low profile night vision system.

The cost-effective and also practical alternative to the Corner-view system was developed specifically for police units. EMMA is a head mounted display which is very flat, it fits behind the bulletproof visor of the helmet. The TIMRO is attached to the helmet, the image information

can be transferred directly to the EMMA-Display. So it is to our knowledge the only available night vision system, which can also be used with the shield in a closed position.

Since, especially in critical police operations often smoke is used, the combination is provided with a thermal imaging device, of course, a particular advantage.



EMMA HMD display with push button for brightness adjustment

Helmet mount, for individual adaptation to the user. If required, the display can be folded out of the field of view.

TIMRO can be removed in seconds and used as a handheld or aiming device.

Connection via cable connection or via X-Shut Electro possible.

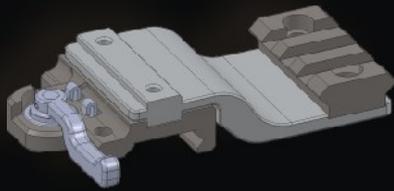
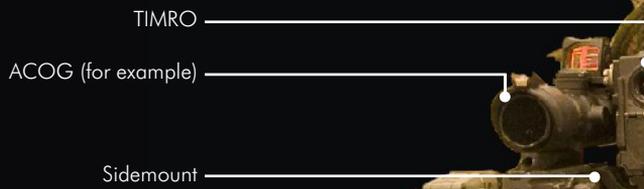


## EMMA/ TIMRO Corner View as combination

Of course, the display EMMA may also be combined with a TIMRO mounted on a firearm. If properly used, an orientation is also possible in this way.

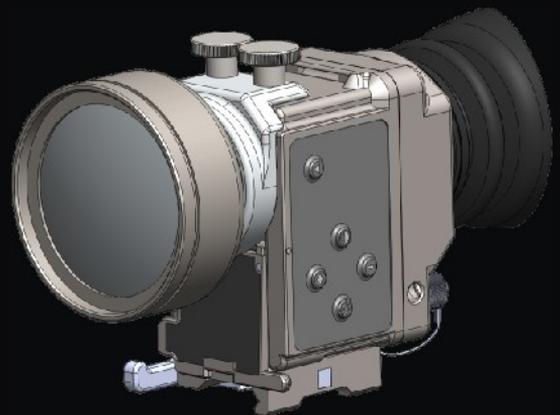


## Sidemount



1 | TIMRO Side Mount  
TheramI imaging is also in daytime useful. For simultaneous use of TIMRO and Scope. No. XXXXXX

## Conversion Lens



2 | TIMRO Conversion Lens In order to improve the surveillance capabilities of the TIMRO a conversion-lens-system will be available. It can be mounted in seconds. You can choose from 3 models with 2x, 3x or 4x optical magnification.

## Filter Modes

TIMRO works, of course, like all modern thermal imaging cameras with automatic filters which are perfectly adapted to any situation.

Whether it is very hot or very cold, the

thermal image will always be shown representing the maximum contrast. Conventional systems neglect the fact that automatic filters can lead to deterioration in quality when certain

conditions must be considered. A selection of filters is therefore included to suit any scenario. Additional filters can be developed according to customer's requirements.



### WHITE HOT

This is the default mode in which heat sources are clearly visible and less dynamic areas such as branches and leaves are well represented by a relatively strong use of the DDE (Digital Detail Enhancement).

#### Effect:

Heat sources are brightly represented. Humans and animals, despite the strong increase in contrast, are clearly visible and recognisable.



### BLACK HOT:

This filter is particularly suitable for outdoor environments where the contrast is usually good. The default settings are similar to those of the "White Hot" filter, except that the heat sources are shown in black.

#### Effect:

Since heat sources are shown in black, you get a very natural image, which differs only a little from a picture taken with a black and white camera. Many users find it easier to visualize images with this filter. People are less visible.



### SEARCH:

This filter is practically the opposite of the booster filter. With the SEARCH filter mode, heat sources such as humans and animals are particularly visible. Objects with average heat emission, such as leaves or branches and also indoor furniture are, in contrast, barely visible.

#### Effect:

This filter makes it possible, for example, to look through bushes to find hidden persons or animals. Its very dynamic temperature distribution could be very helpful, for instance, in searching for missing people.



### BOOSTER:

This mode is specially designed for imaging at low temperatures indoors and is intended to provide the highest possible contrast representation of the area. To do this, even the smallest differences in thermal radiation are amplified. In addition, DDE (Digital Detail Enhancement) developed by FLIR, is a contour enhancement application which further sharpens the image.

#### Effect:

Imaging is possible even in basements or tunnels where almost all objects have the same temperature. Branches and leaves are also given a very high contrast. Heat sources, however, are less visible. Noise is also amplified.

Filter mode	Displays the currently selected filter
Compass:	Can be switched off
Digital Compass:	Accuracy +/- 2°
Shutter:	Square appears around 2 seconds before the thermal imaging sensor automatically calibrates, and the picture freezes for 1 second.
Battery indicator:	Begins flashing about half an hour before the battery fails.
Reticle:	Can be switched off and can be selected from two versions. It is always complementary to the selected filter mode, for example, Black with White Hot (WH)
Zoom:	digital (1x, 2x, 4x, 8x)

PIN-Code:

The TIMRO is protected against loss and misuse with a unique PIN code. It must be entered by the user for example after switching on the device 20 times.

If the user does not, or if he enters a wrong PIN code several times, the device can no longer be used and a corresponding message appears on the display.

The device can only be unlocked by Andres Industries AG. It is then returned to the registered owner.

The interval in which a PIN code-free use is possible, can be set by the owner himself at a value between 1 and 250.

The PIN code can be entered earlier, for example, if prior to a deployment, the user wishes to use the maximum number of intervals between each PIN code.



Red Filter:

At night it is important to have both eyes adapted to night vision. The TIMRO micro-display can be adjusted in 7 steps, down to a very low level of brightness, thus reducing dazzle.

A monochromatic red filter is also included, which can be moved in front of the ocular, providing additional dazzle protection.

Note: Always use TIMRO with the same eye at night, so only this eye is exposed to dazzle. The device should also be adjusted to the lowest brightness level possible with the filter inserted.



# Technology

in the smallest space at the lowest weight

Eyecup (removable)  
Prevents light scatter

security lock slot

Snap-on module for future optional modules:  
- laser marker (IR, red, green)  
- MPEG4 Recorder  
- radio transmission  
- radio reception

Battery compartment for 2xCR123  
Duration 4.5 h

STANAG-mount:  
The optional A.R.M.S rail assembly for mounting on rifles

Helmet adapter:  
The optional helmet adapter is suitable for the U.S. NVG/mount (Rhino). Other adapters available upon request.

Lens cover:  
Made of titanium and connected firmly to the device. Functions as an on-off switch

Main Menu / Special features

Filter mode:  
-White Hot  
-Black Hot  
-Search  
-Booster  
-More if necessary

Zoom in:  
1x, 2x, 4x, 8x

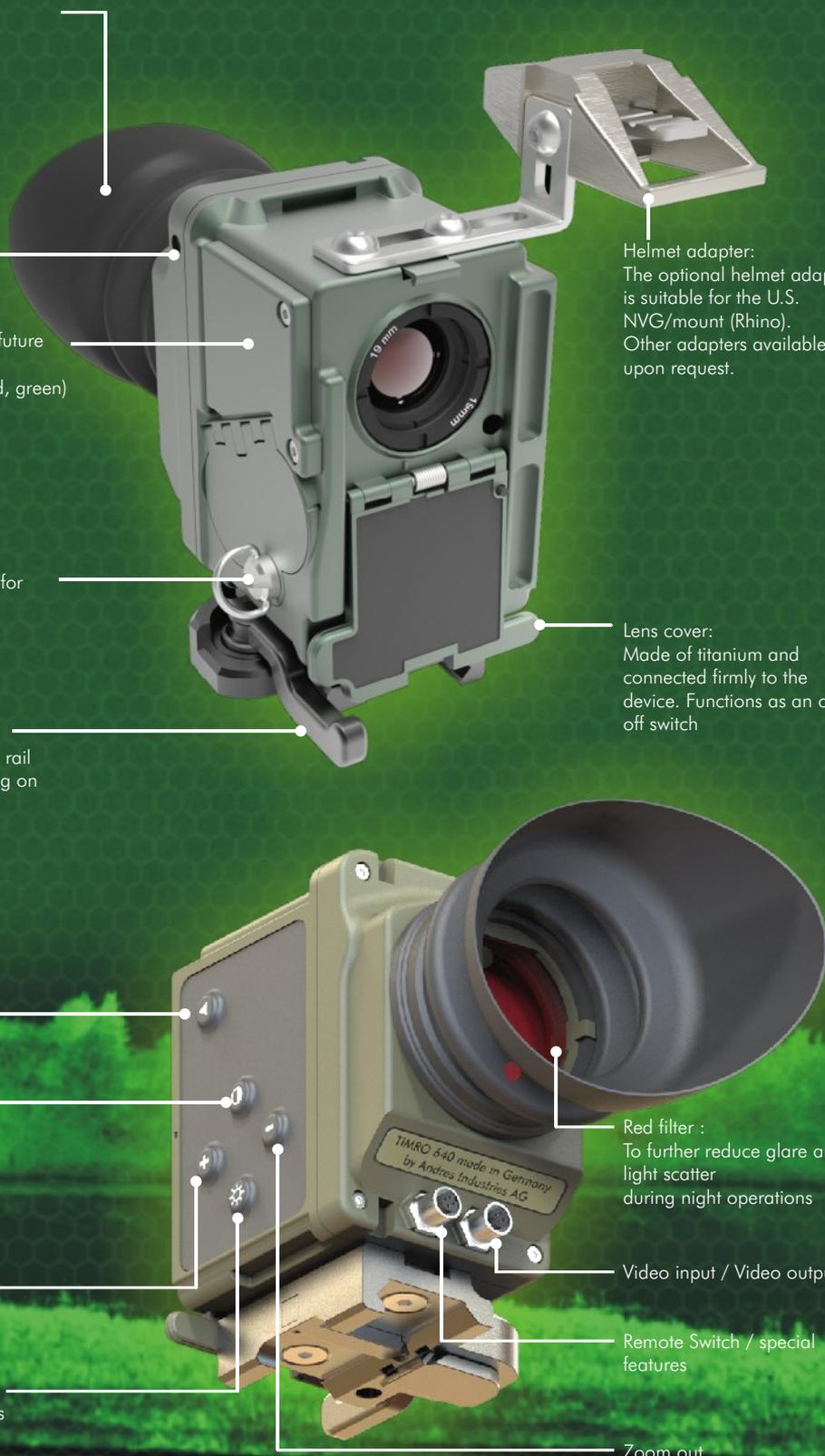
Screen brightness:  
adjustable in 10 steps

Red filter :  
To further reduce glare and light scatter during night operations

Video input / Video output

Remote Switch / special features

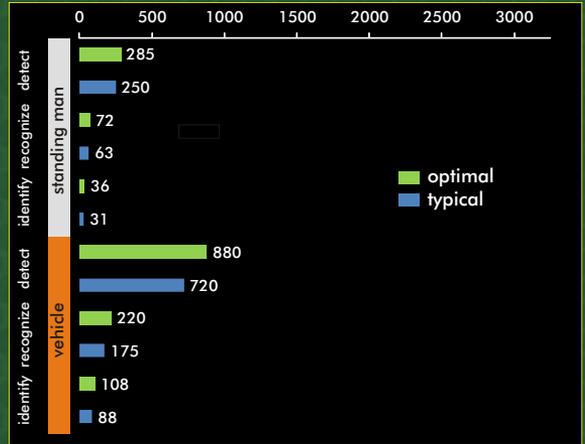
Zoom out



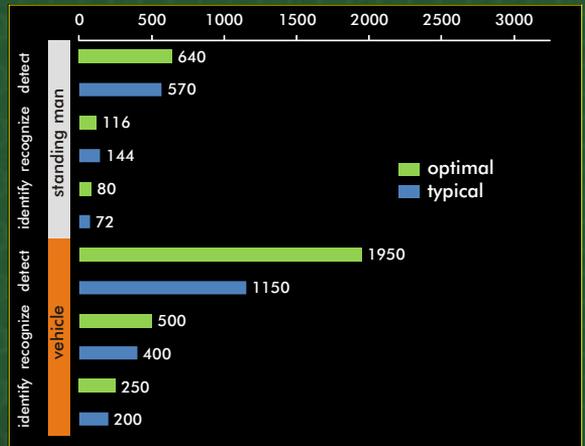
# TIMRO Lens Options

narrow and wide field lenses available

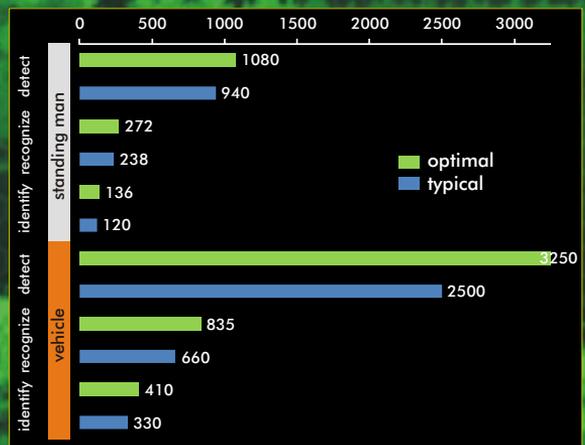
9mm f/1.4 (alternative option)



19mm f/1.25 (standard, only with this lens the field of view is 32°)



35mm f/1.2 (alternative option)



# Technical Data

TIMRO – Thermal Imaging Multi Role Optic				
Modell	TIMRO 640z	TIMRO 640m	TIMRO 320z	TIMRO 320m
Order#	240020	240010	XXXXXX	XXXXXX
Application	Hunting, civilian use (exportrestricted)	Government authorities only (exportrestricted)	Hunting, civilian use (exportrestricted)	Government authorities only (exportrestricted)
Resolution Mikrobolometer	640x480 pixel 9Hz	640x480 pixel 25Hz	320x240 pixel 9Hz	320x240 pixel 25Hz
Temperature resolution	50mK (special version 35mK available)			
Zoom	1x, 2x, 4x, 8x		1x, 2x, 4x	
Spectralband	7,5-13,5µm			
Suitable for sun light	looking directly the sun is possible for short periods			
Filter mode	white hot, black hot, booster, search			
Angel of view	Horizontal 32° / Vertical 26°		Horizontal 34° / Vertical 26°	
Battery	2xCR123 Running time approx. 4h			

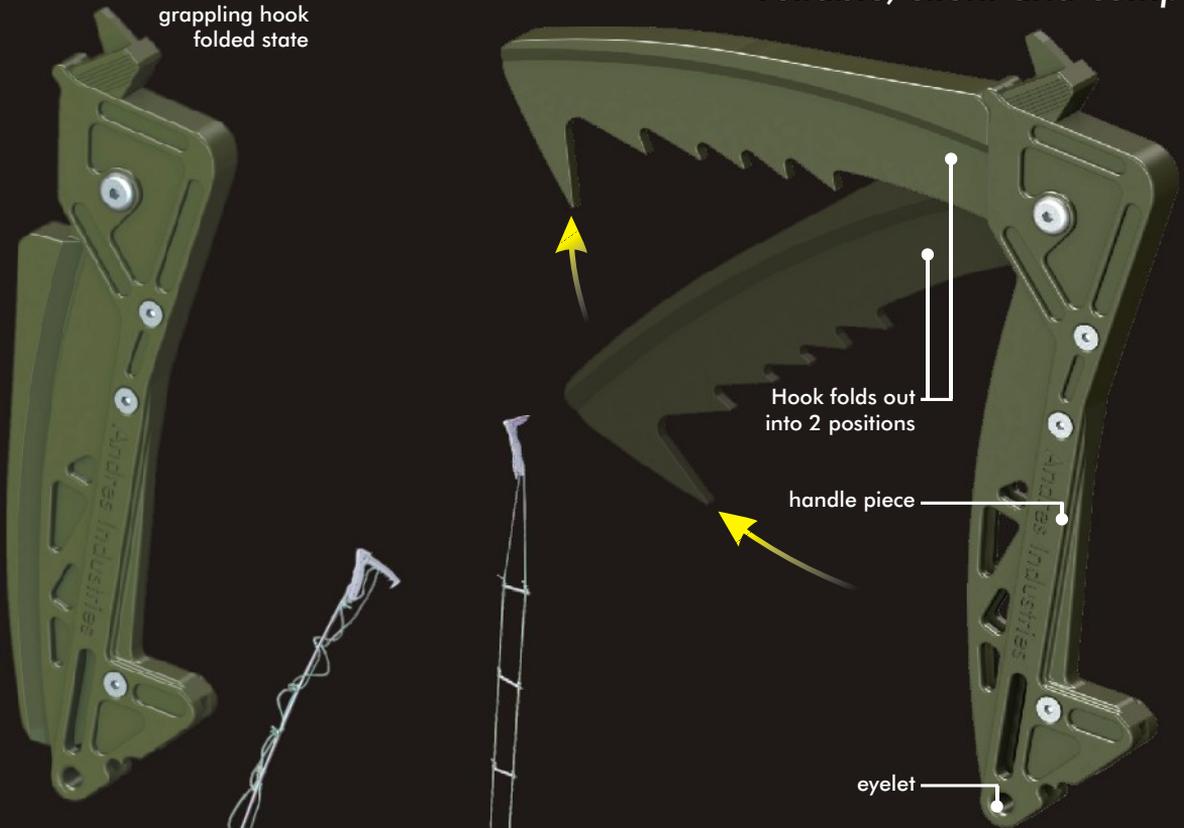
Usable as -	TIMRO 640z	TIMRO 640m	TIMRO 320z	TIMRO 320m
-Handheld device	Yes			
-Headmounted Goggles	Yes			
-Weapon sight	No prohibited	Yes, according to MIL810F	No prohibited	Yes, according to MIL810F
weaponmount	STANAG ( A.R.M.S)		STANAG ( A.R.M.S)	
weapons database	No	Up to 8 weapons can be stored	No	Up to 8 weapons can be stored
Ballistics test	Passed (over 5000 rounds at 7,62mm)		Passed (over 5000 rounds at 7,62mm)	
-Stationary system	Yes			

Snap-on-module (optional)	custom-made and standard			
-Laserdesignator	infrared, red, green			
Corner view	cable available (see page 6)			
Video output	NTSC			
Video input	NTSC			
polarity	white hot/ black hot			
Compass	+- 2°			
PIN-Code	6-digits, (cycle adjustable between 1 and 250)			

Operating temperature	-30 to +60°C			
storage temperature	-40 to +60°C			
water tightness	IP 65			
shock	MIL 810F 516 IV (26 drops from 48 Inch)			
material	Housing: Titanium Grade 5 (laser-sintered)			
eyepiece	rubber			
dimensions	Length:65mm; Width:48mm; height:70,5mm (without attachments) Length:68mm; Width: 55mm; height: 83mm (with A.R.M.S. attachment)			
accessories	Standard: Rubber Eyecup, Eyepiece protection sheet, red filter Optional: Rhino head / helmet mount, SPUHR head- / helmet mount, PAL cable, InterLink cable, transportation support, side mount, conversion lens			
weight	about 220g (including batteries without accessories)			

# Grappling System

reliable, silent and compact



Based on the idea of kedge anchors, Andres Industries developed a system which best could be described as a „Legeanker“. The anchor, which can be folded like a jack knife, is brought into position with the help of a 6m long bar. Through this procedure the anchor can be hooked more precisely and less noisy as it would be the case when purely throwing or shooting it. When the final position is reached a rope ladder, can be unfolded through pulling on the lower

part of the carbon pole. The corded ladder consists of 16-20 ca. 20cm wide step-segments which are connected through two 4mm thick Dyneema ropes (breakingload 14 000daN). The anchor can be unfolded into two positions, which makes it possible to use pipes as well as surfaces, such as rooftops, as fixation points. With this procedure ship's sides or other obstacles of over 5-8m can be overcome quiet and safely. The complete system can be carried on man at all times due to its light weight (1000g-1400g).



## 1 | Grappling System 5m

In order to overcome obstacles up to 5m. Includes foldable grappling Hook and corded ladder.  
No.

## 2 | Grappling System 8m

In order to overcome obstacles up to 5m. Includes foldable grappling Hook and corded ladder.  
No.

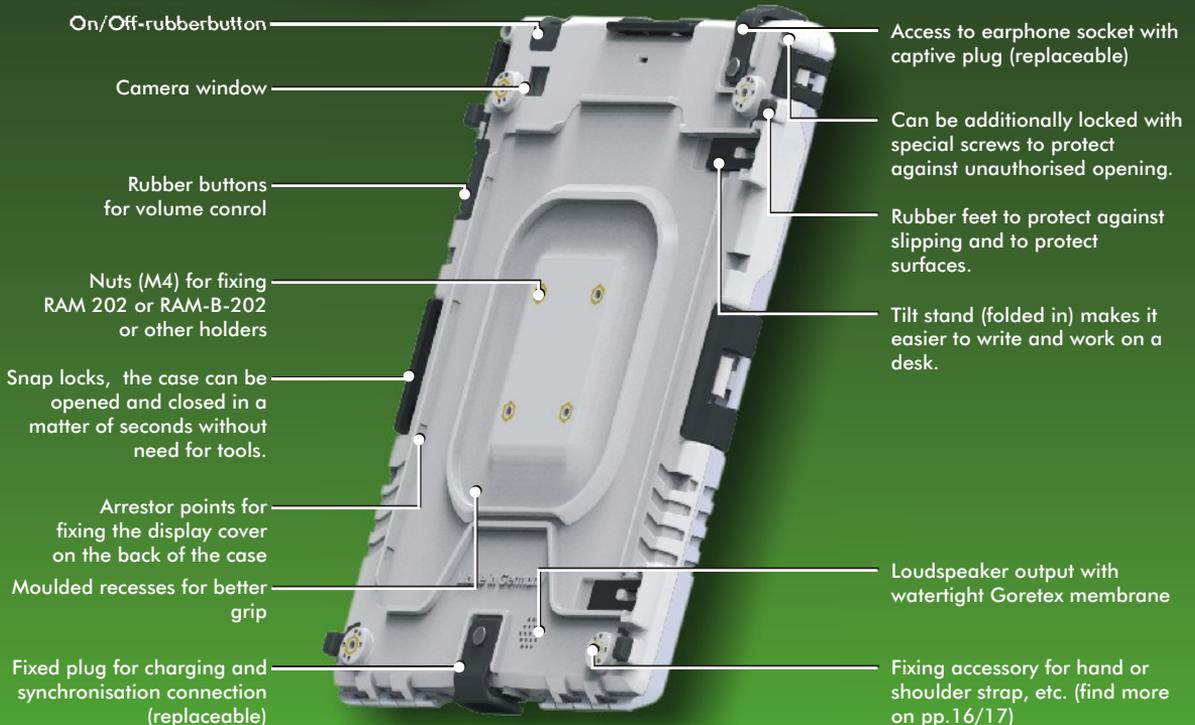
aiShell™



The waterproof and impact resistant cases from Andres Industries are specially developed for Outdoor activities. The same applies to the new aiShell with its IP67 International Protection Rating that is even protected against short-time immersion. Despite the high protection rating almost all the features of the iPad are available, even if it is in the case. But the aiShell can do much more. There is a wide range of extremely extensible accessories. Please read the following pages on what such system solutions can offer you.

Taken together, they make the aiShell into the "Swiss Army knife" of the outdoor cases. It only takes few seconds to insert or remove the iPad from the case. Many conventional outdoor cases have either a simple screen protector or none at all. The aiShell screen is not only protected against the ingress of dust and water, but is also protected against scratches. In addition, there is a display flap for the aiShell that provides particularly high mechanical protection in terms of transportation.

	aiShell mini	aiShell air
suitable for	Apple's iPad mini	Apple's iPad air
waterproof	IP68 (fully immersable)	
impact resistant	MIL810F (military grade)	
security	lockable with special screws to prevent unauthorized opening	
dimensions	222 x 159 x 20mm	ca. 265 x 192 x 20mm
weight	210g	315g
extra	retractable display stand	
connector	waterproof connector for underwater power supply as accessory available	
camera window	front and back	
available	in stock	spring 2014



On/Off-rubberbutton

Camera window

Rubber buttons for volume control

Nuts (M4) for fixing RAM 202 or RAM-B-202 or other holders

Snap locks, the case can be opened and closed in a matter of seconds without need for tools.

Arrestor points for fixing the display cover on the back of the case

Moulded recesses for better grip

Fixed plug for charging and synchronisation connection (replaceable)

Access to earphone socket with captive plug (replaceable)

Can be additionally locked with special screws to protect against unauthorised opening.

Rubber feet to protect against slipping and to protect surfaces.

Tilt stand (folded in) makes it easier to write and work on a desk.

Loudspeaker output with watertight Goretex membrane

Fixing accessory for hand or shoulder strap, etc. (find more on pp.16/17)

# Connectors

With the different waterproof ports, it is possible charge and sync the iPad while in the case.

## 1 | aiShell Lightning Connector

The Lightning Connector can be attached without tools using the thumbscrews and is equipped with a 1m lead, fitted with a standard USB connector. Special versions on this page include waterproof plug and socket systems; lead extensions can also be attached.

No. 291035

## 2 | aiShell™ Docking Connector

The Docking Connector has no cable, but rather 4 contact surfaces thus making it very robust. It can be firmly fixed to the case and used in combination with the waterproof docking unit (see page 5).

No. 291036 (available in 2014)



1 |

2 |

## Special versions and colour variety

The aiShell was developed and produced in Germany. We are therefore able to produce even the smallest quantities in special colours or attach Logo imprints. So if our 7

standard colours do not match your expectations, please give us a call, we will find a solution. We can similarly develop customized accessories for a small anubers of units according to

your specifications, so that the aiShell mini can be a system solution in your company.



3 |

4 |

5 |

6 |

7 |

8 |

9 |

Case	fig.	Discription	Order Nr. aiShell mini	Order Nr. aiShell air
aiShell mini Case colours (aiShell air similar)	3	black	291001	290020
	4	white	291000	290021
	5	olive-green	291040	290030
	6	blue	291050	request
	7	yellow	291070	290031
	8	coyote	291083	request
	9	red	291060	request

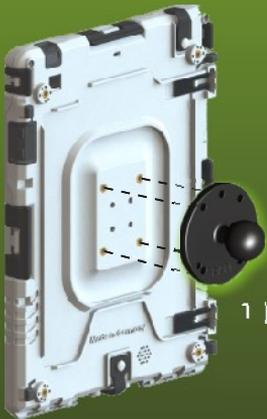
## Reverse side Options

On the reverse side, the aiShell offers extensive expansion options that are constantly being improved.

Only the most important options are presented on the following pages. The fact that the reverse side is compatible with the RAM-Mount-System makes for a large number of combination possibilities. The situation is similar

with the new X-Shut system, which is both much smaller and lighter but has the same stability. The aiShell is all about a system solution that can be further developed the customer wishes, and is continually being further developed.

Therefore, do not hesitate to contact us if you need a special solution.



1 |

### 1 | RAM-B-202 (1" Ball)

The 4 RAM-mount compatible insert nuts allow the attachment of a RAM-b-202 or a RAM 202 on the reverse side. Various other RAM-Mount-Modules can be fastened using these base modules, e.g. cases can be fastened on tables, planes or pipes. An infinite number of mounting options are thereby available, offered by the RAM-Mount-Modules. You will find modules to suit your requirements on page 19.

No. 109001

### 2 | RAM-202 (1.5" Ball no Fig.)

Same as above, but with a 1.5" ball connection to the particularly stable C-ball system

No.303304

### 3 | Quicksnapper aiShell™

If you want the aiShell to be carefully fastened, but easily removable when needed, the Quick Snapper is a reliable solution. The aiShell can be inserted and removed within few seconds. The Quick snapper can either be bolted directly to tables or walls or have a RAM-Mount-Module mounted on its reverse side. In addition, there are holes on the back for attaching of Malice-Clips. In this way, the Quick Snapper aiShell and thereby the entire system, can be attached to Molle vests and backpacks.

No. 291020

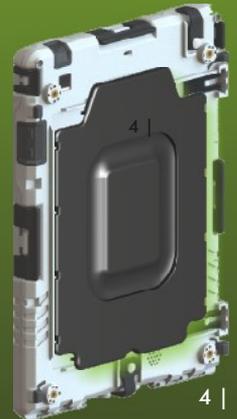
### 4 | Display Flap

If the display flap is not needed to protect the screen, it can be snapped on the back of the case to avoid losing it.

No. 291030

### 5 | Quick Snapper RAM Mount Combination

This is a practical solution for logistics companies. With this combination and with the help of a suction foot, attachment to smooth surfaces such as e.g. windshields is possible. Various RAM-Mount-Modules can be found on page 19



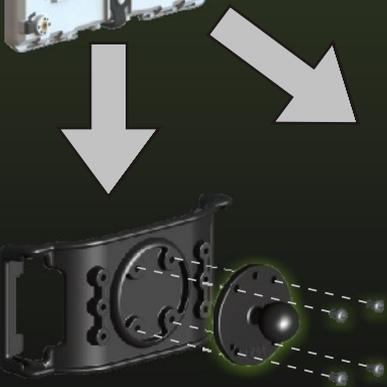
4 |



3 |



5 |



### 6 | RAM-b-202 (1" Ball)

To connect to the RAM mount B-ball system.

No. 109001

### 7 | RAM 202 (1.5" ball) no Fig.

Same as above, but with a 1.5" ball connection to the particularly stable C-ball system

No. 303304



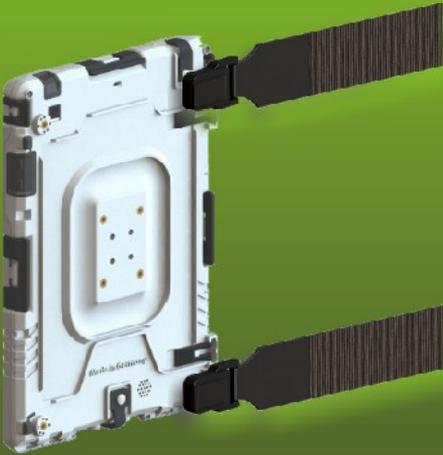
### 8 | Malice Clips

For attachment to standard Molle systems

No. 291595



7 |



### 3 | Shoulder Strap

On the reverse side is an easily removable shoulder strap that can be attached in various positions. If necessary, two shoulder straps can be combined. The aiShell can thus be worn like a hawk's tray. (see p.18 Fig. 8)

No. 291015



### 4 | Hand Strap

As with the shoulder strap, the length-adjustable strap with its 2 attachment points can be attached to each of the 4 insert nuts. The hand strap can thus be used in combination with the shoulder strap. If both hand straps are used simultaneously, the aiShell can even float.

No. 291010



### 5 | X-Shut cross (e.g. aluminium)

The tiny X-Shut cross can also be attached to the reverse side. For the innovative, it offers an interface, which is the smallest, and at the same time, the most robust mounting system of our time. To get an impression of the possibilities of this comprehensive solution, please see pages 20-23.

No. 370023



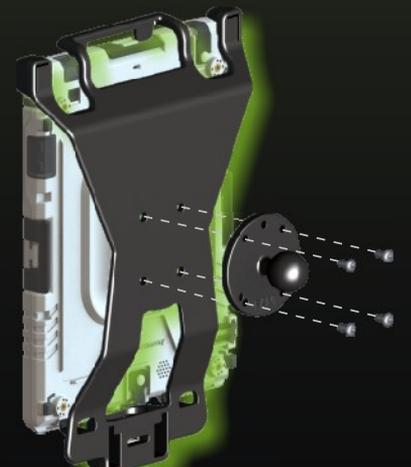
### 1 | Car Holder / Docking Station

The car holder not only provides the option of inserting and removing the aiShell quickly, but rather offers opportunities for charging and syncing possibilities. The aiShell connects immediately when it's plugged into the car holder. The car holder has various backside options that are simultaneously available. The following accessories can remain on the backside

- Display Flap
  - Hand Strap
  - X-Shut Cross
- (available in 2014)

The car holder is of course compatible with the RAM-Mount. In this way, it is for example possible to attach the aiShell to tables and it can be used as a docking station anywhere.

No. 291080



# Case for iPad



The Case for iPad was the first waterproof protective case for the Apple iPad and has been able to prove its reliability in many operational situations. Like the aiShell, it features different accessories for an optimal use in any situation. Thus, besides the Quick Snapper's rapid mounting there is also the possibility of a direct attachment to the RAM Mount system. The C-ball Modules are the right choice here. The extremely small and stable X-Shut System (SS08-11) is also compatible with the iPad case and also has a waterproof connector available that allows you to charge and sync underwater. Unlike to the aiShell, the iPad case can float without special equipment.

- ▶ suitable for Apple's iPad 1-4
- ▶ waterproof IP65, impact resistant MIL810G
- ▶ fully operable in the case, camera port on both sides
- ▶ Dimensions: 206x262x25mm
- ▶ Weight: 510g

1 | Case for iPad (black)  
No. 290002

3 | Case for iPad (olivgreen)  
No. 290004

2 | Case for iPad (white)  
No. 290003

4 | Case for iPad (yellow)  
No. 290005

available colors:



**5 | Hand Strap**  
easily removable. A hand strap and a shoulder strap (p.8) can be attached simultaneously  
No. 290070

**6 | Waterproof Charging Port**  
Can also be mounted without tools. For charging and synchronizing, even underwater.  
No. 290058



**7 | Quick Snapper**  
The case can be attached and removed within a few seconds. Fully compatible with C-Ball RAM-Mount system, (not included) see page 11  
No. 290080



**8 | Shoulder Strap**  
With one or two shoulder straps the Case cannot only be worn over the shoulders, but also in front of the body.  
No. 290060

# RAM-Mount

The RAM mount system is a cost-efficient way to mount everything in place. By combining various modules, of which only a few can be presented here, each user can find just the right holder. This means the case can be fitted in a car, on a motorcycle, forklift, sailing boat or wherever necessary.

In order to securely fix the iPad case in place, ball-size C RAM mount modules are the mount of choice. Smaller size-B modules can be used for the smaller aiShell™-case as long as no particularly strong forces occur.

A RAM 202 can be directly screwed onto the back of the case. Lockable modules are also available to prevent unauthorised removal from the case. Alternatively, a RAM 202 can also be attached to the back of the Quick Snapper, so that the case can be removed within a few seconds from its holder.

## Size recommendation



A-ball

B-ball

C-ball  
Case for iPad

D-ball

E-ball

### 1 | RAM-231

RAM W/U-Bolt für 3/4" to 1"  
DIA  
No. 404513



### 2 | RAM-b-231z

RAM W/U-Bolt for 0.5" to 1,25"  
DIA (similar to illustration)  
No. 109022



### 3 | RAM-201b

Short connecting piece  
90mm for C-Ball units  
No. 303205



### 4 | RAM-b-201

Short connecting piece  
60mm for C-Ball units  
No. 109011



### 9 | RAM-271-2

roundpipe base 2"- 2 1/2"  
No. 303247



### 14 | RAP 224

Twist lock suction cup base  
fits for b- and c-ball units for  
example RAM-202  
No. 303377



### 17 | KNOB5L

The RAM locking knob,  
includes a brass 5/16"-18  
thread, for 1.5" socket arms;  
thus allowing you to disen-  
gage the screwing of the  
knob. You can lock your  
mount in place and feel safe  
that your mounted device will  
stay right where you left it.  
No. 303406



### 5 | RAM-201

Medium connecting piece  
140mm for C-Ball units  
No. 303405



### 6 | RAM-b-201

Medium connecting piece  
90mm for C-Ball units  
No. 109010



10 | The RAM 235,  
double u-bolt mount, for  
0.5" bis 1" pipes.  
No. 405200



11 | The RAM-b-235  
recble u-bolt Mount, for  
0,5" bis 1" pipes.  
No. 109077



15 | RAM-271-12  
for pipes with 1.25-1.85"  
diameter  
No. 303242



### 7 | RAM-201d

Long connecting piece  
220mm for C-Ball units  
No. 303305



### 8 | RAM-b-201c

Long connecting  
piece 150mm for C-Ball units  
No. 109012



### 12 | RAM-202

Base to connect the aiShell  
backside with all other RAM  
Mount units. No. 303304



### 13 | RAM-b-202

Base to connect the aiShell  
backside with all other RAM  
Mount units.  
No. 109001



### 16 | RAM-313-C

for pipes with 1.5" diameter  
No. 404725



### 18 | KNOB3L

The RAM locking knob, includes  
a brass 1/4"-20 thread, for 1" (B  
size) socket arms; thus allowing  
you to disengage the screwing of  
the knob. You can lock your  
mount in place and feel safe that  
your mounted device will stay  
right where you left it.  
No. 401185

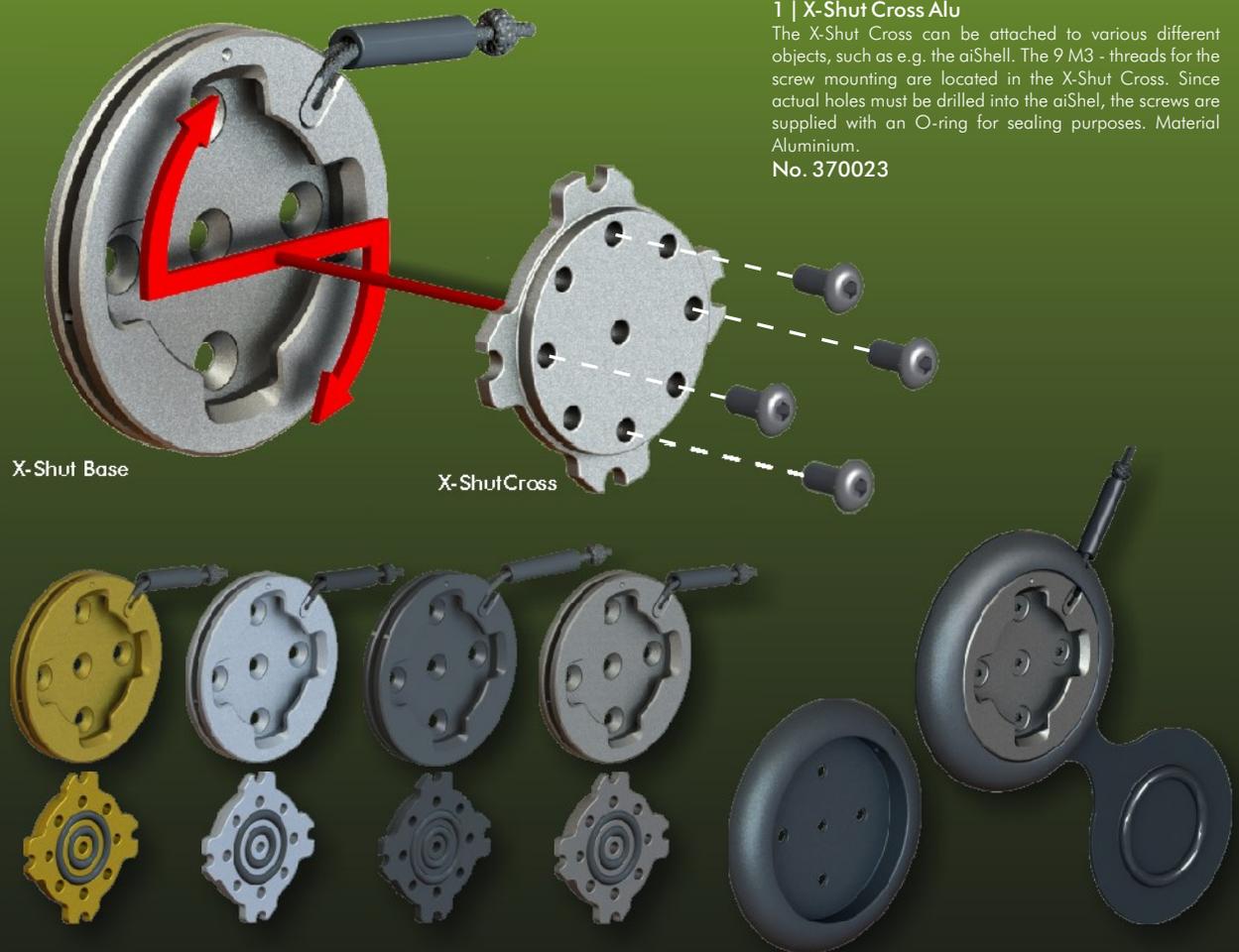


# X-Shut-System

Although the X-Shut system was not developed exclusively for our case solutions, and can be used with various other applications, it is perfect for the aiShell. When using the X-Shut system, it is sufficient that the X-Shut cross is bolted on the reverse side of the aiShell. With this component, a highly reliable, but still easily detachable, connection for

the X-Shut base is supplied. Loads range between 200-900 kg depending on application and selected material.

Similar to the RAM-Mount system, the X-Shut base can either be screwed on directly, or is combined with one of the many accessories available.



## 1 | X-Shut Cross Alu

The X-Shut Cross can be attached to various different objects, such as e.g. the aiShell. The 9 M3 - threads for the screw mounting are located in the X-Shut Cross. Since actual holes must be drilled into the aiShell, the screws are supplied with an O-ring for sealing purposes. Material Aluminium.

No. 370023

X-Shut Base

X-ShutCross

2 | X-Shut  
Base+ Cross  
Alu  
No. 370000

3 | X-Shut  
Base+ Cross  
Stainless Steel  
No. 370001

4 | X-Shut Base+  
Cross Stainless  
Steel black  
No. 370002

5 | X-Shut  
Base+ Cross  
Titanium  
No. 370003

## 6 | Base Frame

Prevents dirt from entering the X-Shut Base and prevents it from accidentally getting caught up in something.

No. 370021

## 7 | Blind Cover

To cover the X-Shut Base when not in use. Makes sure it doesn't get lost. Base frame in figure not included

No. 370022

	overall weight	surface	torsion-test	strain-test	Lever out test
X-Shut Alu (Aluminium)	20,8g	hard anodised	2693,6N	7070,2N	4443,0
X-Shut VA (Stainless steel)	54,0g	pearl blasted	2992,0N	9789,0N	9339,4
X-Shut Titanium	32,1g	pearl blasted	-		

Please note: The above values are not considered as guidelines or guarantee for the maximum capacity of the X-Shut fasteners. They are solely for allocation of the various applications available!

## Belt and Molle Adapter

### 1 | Molle Adapter Vertical

The X-Shut base is given increased vertical stability with the vertical Molle adapter.

This is especially useful when using the SNAKE, or the SPIDER system.

No. 370026



### 2 | Molle adapter Horizontal

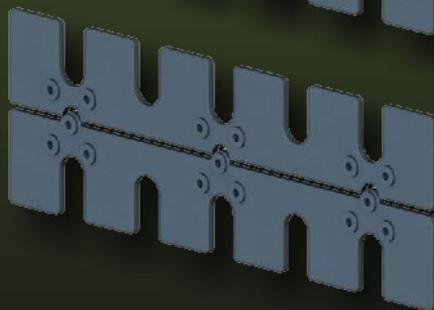
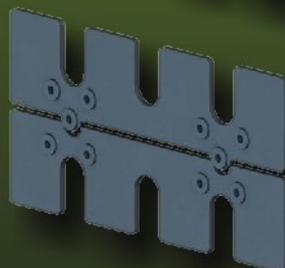
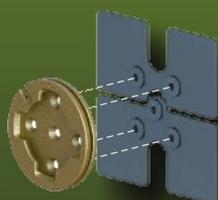
With the horizontal Molle adapters, the X-Shut basis can be connected to the Molle system.

In this way, two or even three X-Shut bases can be arranged next to each other.

Single No. 370016

Double No. 370017

Triple No. 370018



1 |



2 | Double



### 2 | X-Shut Belt Clip S

For belts up to 37mm in width  
No. 370025

### 2 | X-Shut Belt Clip M

For belts up to 60mm in width  
No. 370024

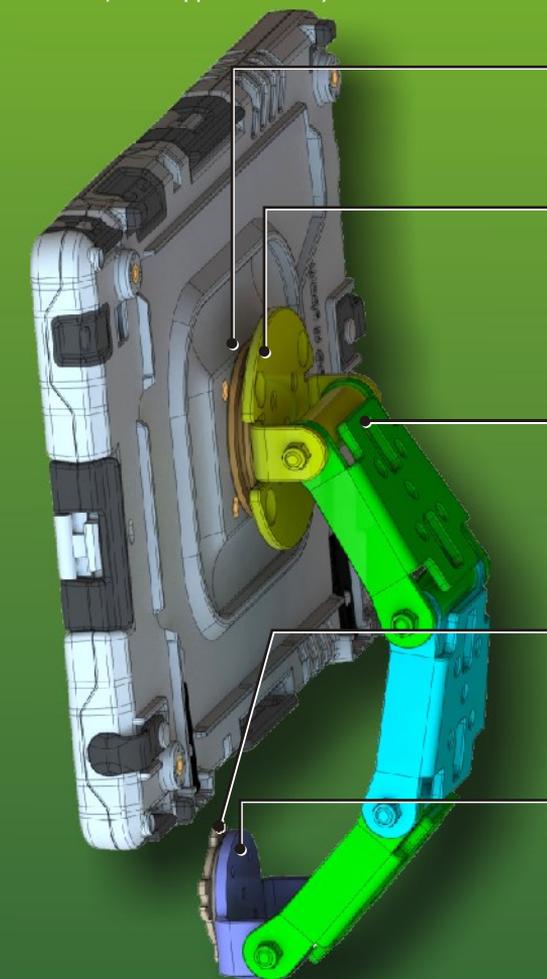


## X-Shut SPIDER and SNAKE extensions

With the SPIDER and the SNAKE extensions, this system is finally an all-rounder. By combining the different items and putting them together individually you can obtain exactly the functionality you need.

The extremely stable SPIDER-links (only for authorities and armed forces) are supplemented by the low cost SNAKE-

Arms, which are available in 4 lengths. The X-Shut cross or the X-shut base is ideally located at the head or foot of each combination. Generally, however, a direct bolting also possible. By increasing or decreasing the tightening of the axle bolts, individual joints may be blocked or remain smooth running.



### 1 | X-Shut Base (e.g. steel)

Made from various materials. See more on page 20 # 1-4

### 2 | aiShell mount SPIDER / SNAKE

To connect the SPIDER / SNAKE with the aiShell. Either directly screwed on or by using another X-Shut Base. The four outer holes are also compatible with the RAM-B-202  
No. 370006

### 3 | Chain link SPIDER

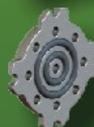
Material aluminium. 50mm axial distance max. Range of motion 160° (Available for authorities and armed forces only.) Can also be combined with SNAKE items.  
No. 370005

### 4 | X-Shut cross (for example aluminium)

Another connection to a X-Shut base can be established with this item, e.g. on a leg section (p. 23) or a plate carrier.  
No. 370023

### 5 | Base holder SPIDER

To connect the SPIDER / SNAKE with a X-Shut cross. Range of motion 100°.  
No. 370004



### 6 | X-Shut Ball joint

0-45° lockable connection link

No. 370020

in 2014 available



### 7 | Base holder SNAKE

To connect SPIDER / SNAKE with a X-Shut cross. Range of motion 360°

No. 370007

### 8 | arm 40 SNAKE

Material aluminium. 40mm axial distance incl. axle and screws

No. 370008

### 9 | Arm 60 SNAKE

Material aluminium. 60mm axial distance incl. axle and screws

No. 370009

### 10 | Arm 100 SNAKE

Material aluminium. 100mm axial distance incl. axle and screws

No. 370010

### 11 | Arm 170 SNAKE

Material aluminium. 170mm axial distance incl. axle and screws

No. 370011



## Plate Carrier

### Attachment to the plate carrier

With the extensive X-Shut product range, which cannot be fully represented in this catalogue, is it not only the aiShell mini that is mounted on military equipment parts such as the plate carrier or other tactical vests. It can also be used for virtually any other equipment such as e.g. mounting navigation devices for HALO and HAHO.

With the help of the SPIDER and SNAKE items, the device can be adapted for the upper body in a stable and a comfortable way; it is then easily folded up again when not needed. Similarly, the device can be completely removed for a non-permanent use.

In special versions, titanium components are also available, which are characterized by a special corrosion resistance towards salt water.

The SNAKE-system shown on the right is the low cost and also very stable version of the SPIDER-system, which is only available for authorities and forces.

The selected combination of the three different SNAKE items is just an example, 1-2 items of the appropriate length are usually enough. As for the items shown on the right, the optimal solution for appropriate use and requirements can be established for each area of usage. Of course, if necessary, special adapters can be manufactured to customer specifications for the X-Shut system.



## Leg Holder

The leg section is the perfect solution for cockpits or vehicles where only limited space is available. It is fully compatible with the X-Shut system through the X-Shut base. Both the SPIDER-system and the various SNAKE-system can thus be used as intermediate items. In this way, distance and

functionality can be optimally adapted according to the needs of the user. The surface of the leg section is rubberized to prevent it from slipping and reinforced with an aluminium plate. It is fixed in the length of one of three adjustable elastic straps to the leg, or belt and can be removed by the fasteners if necessary.



Figure: A possible combination to connect leg section and aiShell using SPIDER chain links.

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