Oyster® – First-class convenience

tenHaaft®
Innovative Mobile Technology

Oyster®

Product range 2014 / 2015

Oyster®

Your decision for a ten Haaft satellite or solar system is not only a decision for a reliable product of a reputable manufacturer, but also a decision for experience and service, intelligent technology and high quality!

Travelling the world – feeling at home wherever you are

Satellite reception or solar energy generation - our products offer great convenience of operation at the touch of a single button.

Admittedly, a holiday trip should offer more interesting thrills than watching TV. However, at times you may feel like relaxing in front of the TV and then you deserve total ease of control.

The best TV show is only half the fun if you have to balance on the roof top or struggle through the pages of a user manual. Most of all, poor reception quality may quickly spoil your good holiday mood.

Watching TV while travelling can be as convenient as at home.

ten Haaft innovations result in a design and styling concept of comprehensive quality, fully in line with the environment and enhancing travelling convenience. Accordingly, the product design plays a key role and has been in the focus of our team of engineers and designers: Attention to detail, high-quality materials and tried-and-proven quality components.

All external components are constructed from stainless steel, aviation grade aluminium and modern UV and weather resistant plastics specifically designed for exterior use.

Convenience at the touch of a button!

Satellite reception or solar energy generation - our products offer great convenience of operation at the touch of a single button.

Mobile Satellite Technology

Over the last 20 years, ten Haaft has earned it's position as the leading manufacturer, in the field of mobile satellite technology, by always being at the forefront of new and further development. All satellite systems from the ten Haaft house are truly quality products as is confirmed by ISO 9001 accreditation.

Alongside first class materials and sturdy construction, much value is placed on quality and security. Each system automatically retracts itself when turning the vehicles ignition key.

A significant further development was the so called rotating head technology of the Oyster® system. Instead of the entire antenna system, only the head rotates. This saves a great deal of space and energy.

Furthermore, ten Haaft offers what is believed to be the lowest profile flat antenna, CARO® and Cytrac® DX, with a folded height of just 14 cm. One thing that all fully automatic satellite systems from ten Haaft have in common: they all lock on to the required satellite in a matter of seconds. Comfort at the push of a button!

Complimenting the extensive range of fully automatic satellite systems, ten Haaft now also offer manual systems which really are child's play to operate – even in the digital age!

Also available from the ten Haaft range are intelligent solar systems which track the sun throughout the day maximising power input. The SamYSolar®+ system is unique on the market offering all the advantages of satellite and solar technology combined.

Brand new to the Oyster® family is the Cytrac® DX with it's phenomenal reception range. We now also offer TV sets. It couldn't be simpler, a single remote control is all that is needed to operate the whole system.

Allow yourself to be surprised at the extensive product range from the manufacturers from ten haaft.

3 years warranty!

For over 20 years with development and production in Germany.

Made in Germany

Oyster® 85

Page 8 - 9

Weight: ~ 14 kg / Height: ~ 22 cm

Reception range 1

Oyster® 65

Page 8 - 9

Weight: ~ 14 kg / Height: ~ 22 cm

Reception range 2

Oyster® Internet

Page 10 - 11

Weight: ~ 16 kg / Height: ~ 23 cm

Reception range 1

New!

Cytrac® DX

Page 12 - 13

Weight: ~ 17 kg / Height: ~ 14 cm

Reception range 3

„Oyster® TV"

Page 14 - 15

New!

POWERED BY Avtex

Display sizes	19" / 47 cm	21.5" / 55 cm	24" / 61 cm
Weight (without foot)	2.5 kg	3.1 kg	3.5 kg
EU energy efficiency category	B	B	B

ASTRA 2 „SKY"

ASTRA 2 „Freesat"

Oyster® SAT-DOM

Page 16 - 19

Weight: ~ 8 kg / Height: ~ 38 cm

Reception range 4

CARO®

Page 20 - 21

Weight: ~ 14 kg / Height: ~ 14 cm

Reception range 4

CARO® MA

Page 22 - 25

Weight: ~ 9 kg / Height: ~ 19 cm

Reception range 5

SamYSolar®+

Page 26 - 27

Weight: ~ 24 kg / Height: ~ 20 cm

Reception range 2

SunMover®

Page 28 - 29

Weight: ~ 24 kg / Height: ~ 17 cm

Reception range: The footprints shown indicate the typical range. Reception may well be possible beyond the footprint with the loss of certain channels. With automatic or manual adjustment of the LNB SKEW angle, particularly in southwest or southeast areas, reception range can be significantly extended. The reception range of individual channels is beyond the influence of ten Haaft and is the responsibilty of the individual satellite operators. ten Haaft cannot be held responsible for actual or future reception ranges which may change without notice.

Technical changes reserved

Oyster® – First-class convenience

The Oyster® satellite system is easy to operate and provides a full range of programmes at utmost convenience.

The 65 cm or 85 cm antenna dish of the Oyster® system provides TV and radio programmes throughout Europe, in Northern Africa and the Middle East.

Wide reception range and brilliant image definition combined with fully digital satellite aiming ensure the reception of your favourite programmes in remote locations such as the Canary Islands or Greece.

Also, the system is very tolerant against adverse reception conditions in poor weather. This is due to the large size of the antenna dishes, which significantly influences number and reception quality of programmes.

3 years warranty!

Made in Germany

Specific Features

- Fully automatic aiming within 30 - 60 seconds (typically)
- LEM technology: Last Elevation Memory for reduced search times (antenna searches at the elevation angle of last reception)
- Automatic retraction at vehicle start
- Automatic satellite swap by channel change
- Highest quality construction using robust materials

Innovative swivel-head technology

Only the head of the antenna rotates.
The antenna body remains fixed which has many advantages:

- Reduced power consumption
- Lower space requirement
- Optimised mechanical load

Options

SKEW: Is a convenient way of optimising reception range. It is especially effective when travelling Europe's southwestern and southeastern holiday regions.

TWIN-LNB: (for two TV sets) a convenient option for multiple participants providing two satellite ports for a second receiver or TV set with integrated receiver.

Height: ~ 22 cm
Weight: ~ 14 kg

Reception range 1
(Oyster® 85)

Reception range 2
(Oyster® 65)

Oyster® Vision (without receiver)

Basis variant, receiver independent version for customers using their own receiver (eg. Sky box) or using a TV with integrated satellite receiver.

Oyster® HDTV (including HD receiver „Europe“)

Top variant, designed for customers for whom an easy to operate, integrated HD receiver with full functionality is an absolute must. Reception of all free to air HD channels such as BBC HD, ITV HD and Channel 4 HD (some ITV HD and Channel 4 HD channels may be encrypted).

New! -
with system remote control

Oyster® Premium (including „Oyster® TV“)

Premium variant, intended for customers demanding an integrated system from a single source. Satellite system and TV set are controlled by the same remote control - easily and without any hassle.

Oyster® Internet HDTV – Broadband internet and TV reception for motorhomes

The Oyster® Internet HDTV offers simple operation with fully automatic connectivity. It provides both internet access with Broadband speeds as well as first class TV reception.

The two-way technology facilitates web surfing and emailing throughout Europe.

With the Oyster® Internet HDTV, ten Haaft have integrated Internet and TV reception into one single system. At the touch of a button, the intelligent system begins searching for the desired satellite.

The system will automatically lock on to either the TV Satellite or the internet satellite (typically ASTRA 3) as defined by the user. Changing the function between TV and internet is also as simple as touching a button.

Dependable, Europe wide internet service and individual contracts are offered from the service providers Hertzinger or IPcopter. The sending of emails or surfing the web is no longer restricted thanks to the comfortable technology of the mobile internet system. Telephoning via the internet is also made possible - independent of any mobile phone network. All the communication comforts of home on the move.

Thanks to the 85 cm parabolic antenna, your favourite TV or radio channels can be enjoyed throughout Europe even as far as North Africa!

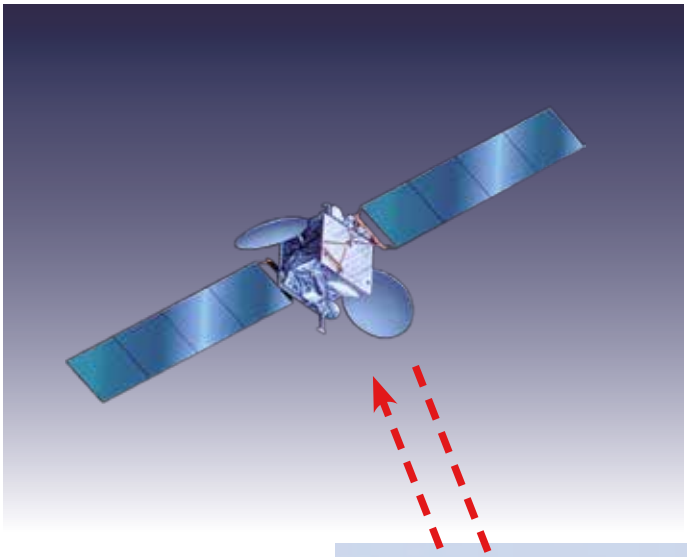
3 years warranty!

Innovative swivel-head technology

Only the head of the antenna rotates.
The antenna body remains fixed which has many advantages:

- Reduced power consumption
- Lower space requirement
- Optimised mechanical load

Made in Germany



Reception range 1
only for television reception

Reception range Internet
can be found at:
www.oysterinternet.com or
www.ipcopter.com

Two-way technology:

A pure satellite solution, without the need for a seperate return channel, is provided by two-way technology. This means that there is no need for a seperate telephone connection. Tariffs and costs can be found at:

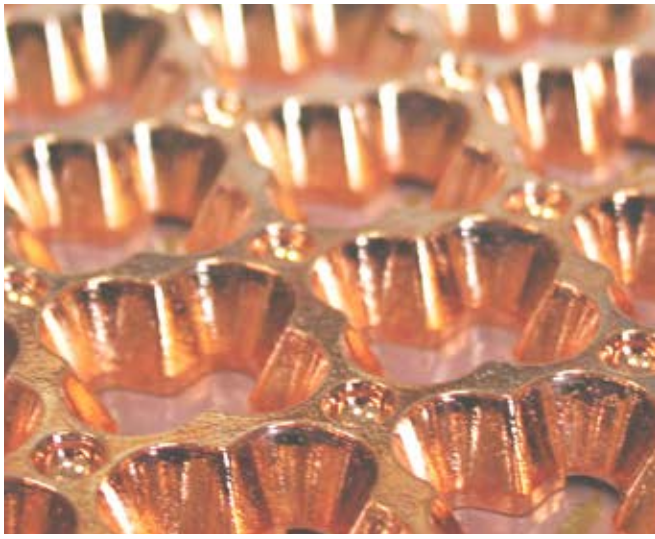
www.oysterinternet.com or
www.ipcopter.com

Scope of supply

Oyster® Internet HDTV

- External unit with antenna dish
- HDTV receiver „Europe“
- Modem
- Connecting cable kit
- Mounting plate

Height: ~ 23 cm
Weight: ~ 16 kg



The New Cytrac® DX – Cutting-edge technology in a compact design for incredible reception range

We have been setting standards in the development of mobile satellite systems for more than 20 years. Now we are introducing our latest masterpiece, the Cytrac® DX system which has been specifically developed to meet the stringent requirements for devices mounted to mobile homes and recreational vehicles.

The innovative antenna technology that facilitates the enormous reception range forms the heart of the Cytrac® DX system. It comprises 1016 interlinked single antennas arranged in a honeycomb pattern.
This results in a reception range that is several hundred kilometres larger than that of anequally-sized flat-dish antenna.

The light-weight Cytrac® DX system is only 14 cm high. Thanks to its compact design, it fits onto almost any vehicle roof. Its robust exterior unit is made of cast aluminium and requires only little space as it rotates in open position only. The system is mechanically reinforced to resist even strong gusts of wind. Its surfaces are made of highly weather-resistant PC-ASA plastic to shed off hail without taking any damage. A hail cover is therefore obsolete.

Operating the Cytrac® DX system is easy and intuitive as it automatically aims itself at the selected satellite.

Specific features

- Small, compact antenna for space-saving installation on the vehicle roof
- Fully automated satellite searching and aiming in 30 to 60 seconds
- LEM technology for reduced search times (system stores last elevation angle)
- Automatic retraction at vehicle start
- High-quality craftsmanship and durable materials
- Solid, reliable design using PC-ASA plastic that even resists hail

A TWIN-LNB variant is available as an option. It allows two receivers to be connected, supplying different programmes to two TV sets.

Height: ~ 14 cm
Weight: ~ 17 kg

Latest reception technology

The core of the Cytrac® DX system consists of 1016 interlinked single antennas arranged in a honeycomb pattern. The power supply to the two polarisation levels is strictly separated to attenuate any crosstalk, thereby creating a previously unknown signal purity that becomes especially obvious with HD channels. Signal accumulation uses the latest mathematical calculation methods to realise the stunning reception range.

Reception range 3
(Cytrac® DX)

Cytrac® DX Vision (without receiver)

Basis variant, receiver independent version for customers using their own receiver (eg. Sky box) or using a TV with integrated satellite receiver.

Cytrac® DX HDTV (including HD receiver „Europe“)

Top variant, designed for customers for whom an easy to operate, integrated HD receiver with full functionality is an absolute must. Reception of all free to air HD channels such as BBC HD, ITV HD and Channel 4 HD (some ITV HD and Channel 4 HD channels may be encrypted).

New! -
with system remote control

Cytrac® DX Premium (including „Oyster® TV“)

Premium variant, intended for customers demanding an integrated system from a single source. Satellite system and TV set are controlled by the same remote control - easily and without any hassle.

„Oyster® TV“ set with system remote control for satellite receivers*

The perfect integration of satellite antenna and TV set

We have committed ourselves to supply products that not only fulfil the demands of discriminating customers in terms of quality, but also when it comes to easy and hassle-free operation.

The latest feature of our premium satellite system is also the cleverest one! Now you can operate the „Oyster® TV“ set and the satellite antenna using the same new system-dedicated remote control.

At the touch of a button, the satellite antenna unfolds automatically, searches the satellite required and, within a few seconds, supplies the channel you have selected on your TV display in optimal HD quality.

And you can listen to your favourite radio station in optimal sound quality even when travelling abroad.

The LED panel displays show crystal-clear images with radiant colours.

The high contrast ratio ensures top-quality image quality even in recreational vehicles, vans or camper trailers. The integrated HD tuner is compatible with DVB-S, DVB-S2, DVB-T and DVB-T2.

Using the USB ports, you can record ongoing programmes on an external hard disk for time-shifted playback. Of course, you can always record your favourite programme.

3 years warranty!

* Available for Oyster® Premium, Cytrac® DX Premium, CARO® Premium and Oyster® SAT-DOM Premium (combination of „Oyster® TV“ and satellite antenna)

„Oyster® TV“ set with system remote control for satellite receivers*

	19“	21.5“	24“
Display sizes	47 cm	55 cm	61 cm
Dimensions excluding base	43.7 x 26.1 x 4.6 cm	50.2 x 29.9 x 4.6 cm	56.3 x 33.0 x 4.6 cm
Weight (excluding base)	~ 2.5 kg	~ 3.1 kg	~ 3.5 kg
Resolution (pixel)	1366 x 768 HD Ready	1920 x 1080 Full HD	1920 x 1080 Full HD
Connections	HDMI / USB 2.0 / CI+	HDMI / USB 2.0 / CI+	HDMI / USB 2.0 / CI+
EU energy efficiency category	B	B	B

Specific features

• **High-end device**	with ultra-flat design
• **LED TV**	fascinating image quality in HD resolution
• **HD-tuner**	for DVB-S, DVB-S2, DVB-T, DVB-T2
• **Connection of external devices**	via USB 2.0 and HDMI ports
• **Universal installation**	thanks to VESA standard mount
• **System remote control**	available for Oyster® Premium, Cytrac® DX Premium, CARO® Premium and Oyster® SAT-DOM Premium (combination of „Oyster® TV“ set and satellite antenna)
• **EPG**	Electronic Programme Guide and timer programming
• **Module slot**	CI / CI+ slot
• **Mains switch**	On / Off

Oyster® SAT-DOM 50 GS – Radio and TV reception while driving

The Oyster® SAT-DOM dome antenna is yet another novelty from ten Haaft which takes fully automatic satellite reception to the next level.

The unique feature of this new system is the antenna's continuous tracking of the satellite, which allows uninterrupted reception of your favourite TV or radio channel while the vehicle is in motion.

Technically, this is achieved with intelligent gyroscope stabilisation. This system detects even the most minimal changes of the vehicle's direction and immediately adjusts the elevation and azimuth angles of the antenna accordingly. As a result, signal reception is maintained at all times – even in tight turns and fast curves.

Thanks to its single cable, the dome antenna is easy to mount on almost any vehicle roof. The space occupied by the antenna unit while it performs the necessary adjustments does not change, as the dish pivots inside the dome. Roof hatches and other accessories can be used without interfering with the antenna and without any risk of damage.

All hardware components and all drive, control and sensor systems are located inside a weatherproof dome, and are thus protected against gusts of wind and airflow. The dome antenna is elegantly shaped and very lightweight. It is available in different versions.

Thanks to the unique 42 cm dish, almost all SKY and Freesat channels can be received on the British Isles.

Specific features

- Fully automatic satellite lock and identification with a single button
- Television reception while driving
- Continuous reception when clear view towards the South
- Water-resistant design prevents freeze-up in winter
- Aerodynamic design
- High-quality craftsmanship and durable materials, UV - Stable

3 years warranty!

Height: ~ 38 cm
Weight: ~ 7 kg

Reception range 4
(Oyster® SAT-DOM 50 GS)

Oyster® SAT-DOM 50 GS Vision Light (without receiver)

Basis variant, receiver independent version for customers using their own receiver (eg. Sky box) or using a TV with integrated satellite receiver.

Oyster® SAT-DOM 50 GS HDTV (including HD receiver „Europe“)

Top variant, designed for customers for whom an easy to operate, integrated HD receiver with full functionality is an absolute must. Reception of all free to air HD channels such as BBC HD, ITV HD and Channel 4 HD (some ITV HD and Channel 4 HD channels may be encrypted).

Made in Germany

Technical changes reserved

Oyster® SAT-DOM 50 ST – The space-saving alternative for recreational vehicles

Fully automatic parabolic antennas must first be raised on arrival at your destination but the Oyster® SAT-DOM 50 ST is always ready for service.

The actual antenna is located under a dome, waiting for the command to find the satellite transmitting the selected channel within just a few seconds.

Thanks to its single cable, the dome antenna is easy to mount on almost any vehicle roof.

The space occupied by the antenna unit while it performs the necessary adjustments does not change, as the dish pivots inside the dome. Roof hatches and other accessories can be used without interfering with the antenna and without any risk of damage.

All hardware components and all drive, control and sensor systems are located inside a weatherproof dome, thus being protected against gusts of wind and airflow. The dome antenna is elegantly shaped and very lightweight. It comes in different versions.

Thanks to the unique 42 cm dish, almost all SKY and Freesat channels can be received on the British Isles.

Specific features

- Fully automatic satellite lock and identification with a single button
- Continuous reception when clear view towards the South
- Water-resistant design prevents freeze-up in winter
- Aerodynamic design
- High-quality craftsmanship and durable materials
- Extremely light design

3 years warranty!

Height: ~ 38 cm
Weight: ~ 7 kg

Made in Germany

Reception range 4
(Oyster® SAT-DOM 50 ST)

Oyster® SAT-DOM 50 ST Vision Light (without receiver)

Basis variant, receiver independent version for customers using their own receiver (eg. Sky box) or using a TV with integrated satellite receiver.

Oyster® SAT-DOM 50 ST HDTV (including HD receiver „Europe“)

Top variant, designed for customers for whom an easy to operate, integrated HD receiver with full functionality is an absolute must. Reception of all free to air HD channels such as BBC HD, ITV HD and Channel 4 HD (some ITV HD and Channel 4 HD channels may be encrypted).

New! -
with system remote control

Oyster® SAT DOM 50 ST Premium (including „Oyster® TV“)

Premium variant, intended for customers demanding an integrated system from a single source. Satellite system and TV set are controlled by the same remote control - easily and without any hassle.

Technical changes reserved

CARO® – Just switch it on and watch TV: at the touch of a button!

The compact design of this satellite system enables a minimal flat build height of an unrivalled 14 cm.

A hail-proof cover and robust materials provide maximum protection for the hi-tech internal components. An additional hail-proof cover is unnecessary.

Compared to conventional parabolic antennas, the 54 x 54 cm flat antenna is much less vulnerable to strong winds which, like our CARO® system, makes it an attractive option for owners of van conversions and caravans.

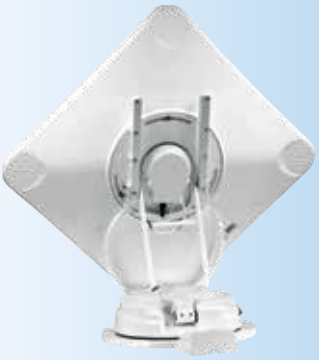
The CARO® remains the ideal alternative for those with limited roof space.

Specific features

- Hail-proof surface
- Extreme stability
- Robust materials
- Minimal active radius
- Automatic satellite swap
- Minimal build height (14 cm when closed)
- Automatic satellite swap by channel change

Naturally we've thought of your security. When you start your vehicle, the CARO® folds automatically to the park position.

Height: ~ 14 cm
Weight: ~ 14 kg



Rear view of the CARO® antenna:

Manual SKEW-angle adjustment for maximum reception range

Reception range 4 (CARO®)

CARO® Vision (without receiver)

Basis variant, receiver independent version for customers using their own receiver (eg. Sky box) or using a TV with integrated satellite receiver.

CARO® HDTV (including HD receiver „Europe“)

Top variant, designed for customers for whom an easy to operate, integrated HD receiver with full functionality is an absolute must. Reception of all free to air HD channels such as BBC HD, ITV HD and Channel 4 HD (some ITV HD and Channel 4 HD channels may be encrypted).

New! -
with system remote control

CARO+ Premium (including „Oyster® TV“)

Premium variant, intended for customers demanding an integrated system from a single source. Satellite system and TV set are controlled by the same remote control - easily and without any hassle.

CARO® MA Vision – The receiver independent entry level model

CARO® MA Vision is the entry level model with renowned quality reception. This manual and receiver - independent satellite system combines ease of use with good reception in central Europe.

At the heart of this manual satellite system is the intelligent satfinder.

It couldn't be easier to get the required settings shown in the display. Using the specially developed mast, the antenna can be set up to the displayed settings. The satfinder shows the signal strength in the display whilst emitting an accoustic beep to optimise the reception.

The CARO® MA Vision offers greater flexibility as any commercially available digital satellite receiver or High Definition receiver can be used.

Specific features

- Very simple operation
- Sturdy crank mast, easy to use
- Intelligent satellite recognition with handy Satfinder (optical and acoustic support)
- Signal strength indicator for optimum setting
- Automatic calculation of satellite position by location
- 3 year warranty and reliable service

3 years warranty!

Made in Germany

Height: ~ 19 cm
Weight: ~ 9 kg

Rear view of the CARO® MA Vision antenna:

Manual SKEW-angle adjustment for maximum reception range

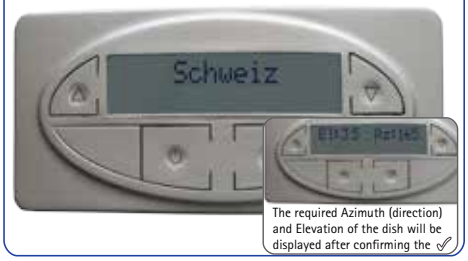
Reception range 5 (CARO® MA)

CARO® MA Vision – Steps for operation

1 After parking the vehicle on level ground, switch on the TV and the receiver. Activate the Satfinder by pressing the power button "⏻". The last satellite selected will be displayed.

2 To change the satellite (e.g. to Astra 2), press "△" or "▽" and confirm selection by pressing "✓".

3 The last location appears in the display (e.g. Switzerland) and can also be changed by pressing "△" or "▽".

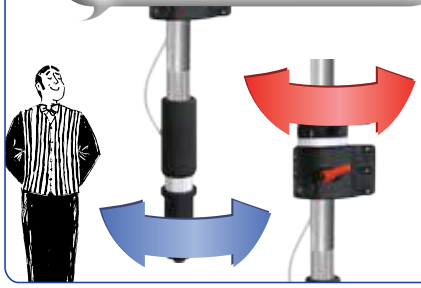


The required Azimuth (direction) and Elevation of the dish will be displayed after confirming the ✓

4 Using the twist grip, set the given elevation (e.g. 35). This will raise the antenna.

5 Using the crank mast, turn the antenna to face South-South-East (azimuth). Once the given Elevation and Azimuth have been set, confirm with „✓".

6 If you don't find the satellite straight away, make minor adjustments in both directions (azimuth and elevation – steps 4 + 5) until the satellite is found.



7 An audible beep will indicate that signal is being received. The signal strength meter will be shown in the display.

8 The optimum signal can be achieved by fine tuning with an eye on the signal strength. The signal strength is optimised for reception as soon as the signal bar in the display reaches maximum. An audible beep also confirms that good signal is being received.

9 Tighten the red lever to secure the crank mast.

Turn off the Satfinder with the power button "⏻". You can now watch TV.

Happy Viewing!

CARO® MA HDTV –
The entry level model for great reception

CARO® MA HDTV is the entry level model with renowned quality reception. This manual satellite system combines ease of use with good reception in central Europe.

The digital age for TV transmission via satellite is well and truly with us, providing both picture and sound of outstanding quality. All seasoned motorhome or caravan owners know about how frustrating, not to mention time consuming, setting up a manual satellite system by hand can be.

3 years warranty!

Made in Germany

Height: ~ 19 cm
Weight: ~ 9 kg

In the bygone analogue age the process of locating the desired satellite by hand was a little easier. By facing the dish in the approximate direction, a vague signal was easy enough to find with only a little fine tweaking then required. This procedure has become obsolete as the analogue signals were switched off at the end of April 2012.

In the digital age it is extremely difficult to locate a satellite by this traditional method. While adjusting the antenna it is all too easy passing the signal point without even noticing. Our engineers have developed the perfect compromise. The CARO® MA HDTV is a manual satellite system which makes locating the required satellite child's play.

Multi-Function Receiver with Sat-Finder

The innovative multi-function receiver, with integrated sat-finder, makes child's play of locating the satellite. The settings for the required satellite are displayed on your TV screen.

The elevation is set using the precise and easy to read scale and the mast can be turned to point the antenna in the general direction. Both an optical and accoustic signal indicate when the required satellite has been found.

Multi-Function Receiver with Sat-Finder

Reception range 5
(CARO® MA)

CARO® MA HDTV – Steps for operation

1 After parking the vehicle on level ground, switch on the TV and the receiver. Satellite location mode is activated by pressing the FUNC - button on the remote control.

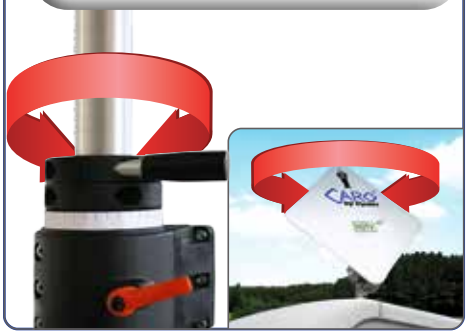
2 As an example, shown on the TV screen.

3 Press "◂" or "▸" on the remote to select the required satellite (e.g. Astra 2). Press "▴" or "▾" to select your current location (e.g. Belgium).

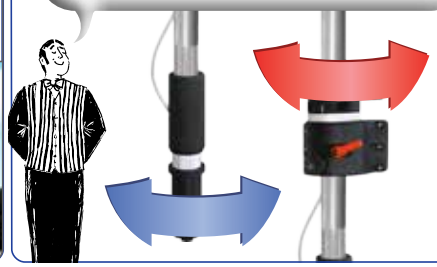
The Azimuth and Elevation appear automatically after selecting the satellite and the location.

4 Using the twist grip, set the given elevation (e.g. 35). This will raise the antenna.

5 Using the crank mast, turn the antenna to face South-South-East (azimuth).



6 If you don't find the satellite straight away, make minor adjustments in both directions (azimuth and elevation – steps 4 & 5) until the satellite is found.



7 Assuming the TV volume is turned up, an audible beep will indicate that signal is being received. The signal strength (e.g. 8.0 dB) will be shown on the TV screen.

8 The optimum signal can be achieved by fine tuning with an eye on the signal strength. A green signal bar is enough for good reception.

9 Tighten the red lever to secure the crank mast.

Press the FUNC - button on the remote control to watch TV.

Happy viewing!

SamYSolar®+ – Pure mobility

The SamYSolar®+ system is the ingenious combination of two applications: solar power generation and satellite reception. This system provides high performance in two ways: in solar mode, its GPS-controlled 50 Wp solar module provides a high energy yield, while in satellite mode, the system's 65 cm offset antenna dish provides a large reception range.

This innovative and patented development combines the convenience of an automatic satellite system with the energy yield of a self-tracking solar module into one integrated unit.

The GPS-controlled system either automatically tracks the course of the sun or uses its 65 cm offset antenna to provide reliable satellite reception even in remote areas and all at the touch of a button.

The SamYSolar®+ system is equipped with a 50 Wp solar module that is always perfectly aimed at the sun and hence provides optimal energy yield.

This is equivalent to about three fixed horizontal 50 Wp single modules (measured over the period of one year in London, depends from season and weather). The SamYSolar®+ system means least possible space requirements at high mobility and convenience.

3 years warranty!

Made in Germany

Height: ~ 20 cm
Weight: ~ 24 kg

SamYSolar®+ Operator Panel

Satellite TV reception or solar power at the touch of a button!

Reception range 2 (SamYSolar®+)

GPS

Why GPS? The term GPS (Global Positioning System) is usually associated with navigation systems. But what has a solar system to do with a navigation system? Usually, nothing. However, the SamYSolar®+ system uses GPS data to determine the precise position of the system, date and time.

Using this information, the SamYSolar®+ system calculates its precise position relative to the sun. Even on cloudy days the solar module is then aimed directly at the sun and provides maximum yield.

Rear view of the SamYSolar®+ - antenna

Specific features

- Intelligent solar system with 65 cm offset antenna and 50 Wp solar module mounted on the rear
- Combined solar-satellite operator panel with illuminated display in DE, GB, FR, NL, IT, ES, SE, DK, FI and PT
- Operator panel designed for either recessed or surface mounting
- Software updates easy to carry out using standard SD memory card
- Satellite mode with digital satellite aiming, independent of receiver, allowing almost all receivers as well as provider-supplied digital set-top boxes to be used
- Satellite reception or, alternatively, solar operation at the touch of a button
- Automatic opening at dawn and retraction at dusk (optional, in solar mode)
- GPS control with continuous transfer of date, time, sun position and vehicle position, thus ensuring an optimal aiming at the sun and hence an optimal energy yield
- Weather-proof design
- Low space requirements due to single solar module
- Convenient operation: push-button control, enhanced mobility
- Yield advantage: The self-tracking 50 Wp solar module provi des a yield equivalent to about three single horizontal 50 Wp modules (measured over the period of one year in London, depends from season and weather)
- Low power consumption of motor unit
- Automatic retraction at vehicle start
- Highest quality construction using robust materials
- A charge controller is included in the scope of supply
- It can be coupled with existing solar systems if the on-board charge controller is compatible
- Made in Germany
- QM certificated manufacturer with ISO 9001

Technical changes reserved

SunMover® – Pure solar energy

The SunMover® revolutionises mobile solar technology. A specifically designed 75 Wp solar module, mounted onto a compact motorised pan-and-tilt unit, is combined with GPS control for maximum energy yield.

The SunMover® is an intelligent and GPS-controlled solar system which automatically tracks the sun's path during the day.
It is equipped with a specifically designed 75 Wp solar module which is always perfectly aimed at the sun - hence providing optimal energy yield.

The average yield is equivalent to that of about three fixed horizontal 75 Wp solar modules (measured over the period of one year in London, depends from season and weather).

The SunMover® system thus saves a lot of space on the vehicle roof and is very easy to operate by simply pressing a button.

The enhanced yield of the SunMover® system is even greater in winter. During the winter months, the sun is always low over the horizon, and horizontally positioned modules only generate a minimal yield, accordingly.

3 years warranty!

SunMover® Operator Panel

Dimensions:
W x D x H = 14.0 x 7.1 x 3.5 cm

GPS

Why GPS? The term GPS (Global Positioning System) is usually associated with navigation systems.
But what has a solar system to do with a navigation system? Usually, nothing. However, the SunMover® system uses GPS data to determine the precise position of the system, date and time.

Using this information, the SunMover® system calculates its precise position relative to the sun. Even on cloudy days the solar module is then aimed directly at the sun and provides maximum yield.

Height: ~ 17 cm
Weight: ~ 24 kg

Specific features

- Intelligent solar system with 75 Wp solar module to automatically track the sun during the day
- Operator panel with illuminated display in DE, GB, FR, NL, IT, ES, SE, DK, FI and PT
- Operator panel designed for either recessed or surface mounting
- Software updates easy to carry out using standard SD memory card
- Automatic opening at dawn and retraction at dusk (optional)
- GPS control with continuous transfer of date, time, sun position and vehicle position. This ensures an optimal position relative to the sun and a constant maximum energy yield
- Convenient operation: push-button control, enhanced mobility
- Yield advantage: The self-tracking 75 Wp solar module provides a yield equivalent to about three single horizontal 75 Wp modules (measured over the period of one year in London, depends from season and weather
- Low power consumption of motor unit
- Automatic retraction at vehicle start
- Highest quality construction using robust materials
- A charge controller is included in the scope of supply
- It can be coupled with existing solar systems if the on-board charge controller is compatible
- Made in Germany
- QM certificated manufacturer with ISO 9001

Made in Germany

Technical changes reserved

HDTV

The acronym HDTV stands for ‚High-Definition Television‘, a technical standard providing significantly sharper images and much greater detail as compared to the previous PAL standard.

Specific features

- Digital receiver (DVB-S / DVB-S2) for the reception of satellite channels in High-Definition format (HDTV) and Standard format (SD)
- Supported display formats: 480i / 480p / 576i / 576p / 720p / 1080i
- TWIN tuner: 2nd satellite input for the recording of one programme while watching another programme (optional: requires TWIN antenna!)
- Numerous channel lists for European countries are programmed at the factory
- Freely configurable list of favourite channels
- Software and channel list updates via USB-Stick
- User-friendly, multilingual on-screen menus (languages: DE, GB, NL, FR, IT, ES, PT, SE, NO, FI, DK, CZ, GR, PL)
- 5000 channel presets (for TV and radio)
- EPG: Electronic Program Guide
- Teletext integrated in digital receiver (800-page memory)
- PVR (Personal Video Recorder): Recording and playback via external USB devices
- Common Interface, CI slot system for smart cards (module / card not included)
- SDHC card interface for the display of JPG images
- RASS (Radio Screen Show): displays up-to-date information about the program such as the CD cover of the running track, short messages, etc.
- Digital radio reception in CD quality
- Web radio via IP network port
- Playback of image and music files (e.g. JPEG) from external storage devices via USB 2.0 interface
- Switched power outlet 6 V / 12 V for 16:9 / 4:3
- Standby power consumption only approx. 10 mA in power-save mode
- 3-year warranty and reliable service
- Weight: 1.2 kg
- Dimensions: W x H x D = 27.2 x 6.3 x 15.5 cm

HDTV receiver „Europe“ – Customary convenience and convincing technology combined

This receiver is available with the following combinations:

High Definition Television

Technically speaking, HDTV means a higher vertical and horizontal resolution than Standard Definition Television (SDTV). To create an optimal picture from HDTV signals, the display must have a matching physical resolution.

Inputs / Outputs

- Digital HDMI output for the connection of LCD or plasma TV sets
- Digital HDMI input with loop-through function for the looping of HDMI signals to the HDMI output
- 2 x LNB IN (SAT1, SAT2) for TWIN function
- S/PDIF digital audio output (coaxial) for the connection of an external audio amplifier or stereo set
- High-quality YPbPr component output (RCA) for projectors, LCD or plasma devices (HD-compatible)
- Analogue video / audio inputs and outputs (RCA) for analogue SDTV devices
- Loop-through function (looping of analogue signals from the AV inputs [CVBS, audio L/R] to the corresponding A V outputs)
- CTRL Out (RCA), switching voltage 12 V / 300 mA
- AV Out (RCA), switching voltage 6 V / 12 V
- USB 2.0
- CI slot and SDHC card slot
- Headphone port with volume control
- Antenna control
- 12 V - 24 V DC in (operating range: 11 V .... 32 V)
- Switching relay terminals, max. 7 A / 30 V DC
- Satellite mouse for channel display, direct control and IR reception
- EXT-IR for the connection of an optional IR receiver with 3.5-mm stereo jack

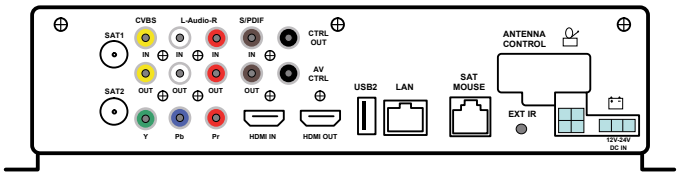
Accessories

- Satellite mouse with channel display and direct control
- IR remote control with 2 selectable system codes for the interference-free control of two receivers
- „Easy“ remote control

Options

- External loop-through switch for the looping of the satellite signal to an additional device such as a satellite receiver or modem
- IR sensor
- RCA / Scart adapter for the connection of older TV sets

3 years warranty!



Technical changes reserved

SKEW

(Available for Oyster® Vision, Oyster® HDTV and Oyster® Premium)

For optimal reception at the limits of the reception ranges in South-Western and South-Eastern regions, the LNB may have to be rotated in order to compensate the polarisation deviation - or SKEW angle - caused by the earth's curvature.

TWIN-LNB

(Available for Oyster® Vision, Oyster® HDTV and Oyster® Premium / not for Oyster® Internet)

This option provides 2 connections for the convenient operation of a second receiver, e.g. in the sleeper compartment. The TWIN-LNB allows two different programmes to be viewed using the Oyster® and a second receiver (second receiver not included in standard TWIN-LNB option).

TWIN-LNB SKEW

(Available for Oyster® Vision, Oyster® HDTV and Oyster® Premium / not for Oyster® Internet)

The combination of TWIN LNB and Auto-SKEW offers maximum convenience and combines the full advantages of both systems.

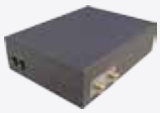
Groundkit

(Available for Oyster® Vision, Oyster® HDTV, Oyster® Premium and for Oyster® Internet)

If reception is impaired e.g. by a tree, the Oyster® can be removed from the roof and can be set up on the ground. The ground kit comprises a durable stand for stability even on uneven ground. A 15-metre extension cable (also available separately) provides sufficient clearance to the obstacle. An alarm system installed at the receiver provides anti-theft protection by sounding a horn inside the vehicle.

Control Unit and Operator Panel

The control unit houses all control electronics of the satellite system and is usually concealed in a cupboard. Dimensions Control Unit: 15.1 x 4.6 x 11.5 cm



The easy to use control panel should be located in a more accessible spot. A single button push raises the dish to the last reception point (LEM). If it doesn't receive a signal at this point, it begins a fully automatic search. Dimensions Operator Panel: 14.0 x 7.1 x 3.5 cm

Sat-Finder

The Sat-Finder is an intelligent satellite search facility for manually tuning the dish to a particular satellite and allows for the use of any receiver.

It gives the specific values for your required satellite based on your current location. During the manual search, the Sat-Finder recognises the satellite you are looking for without any time delay.
Dimensions Satfinder: 16.0 x 8.7 x 3.5 cm

Technical changes reserved

ten Haaft TV sets	„Oyster® TV" – 19"	„Oyster® TV" – 21.5"	„Oyster® TV" – 24"
Type	L187TRS	L217TRS	L247TRS
EU energy efficiency category	B	B	B
Display size	19" / 47 cm	21.5" / 55 cm	24" / 61 cm
Operating power	23 W max.	26 W max.	35 W max.
Annual energy consumption in kWh / year*	34 kWh / year	37 kWh / year	51 kWh / year
Power consumption in standby / off state	< 0.5 W	< 0.5 W	< 0.5 W
Resolution (pixel)	HD Ready 1366 x 768	Full HD 1920 x 1080	Full HD 1920 x 1080
Viewing angle H / V	170° / 160°	170° / 160°	170° / 160°
Tuner	DVB-S, DVB-S2, DVB-T**, DVB-T2**	DVB-S, DVB-S2, DVB-T**, DVB-T2**	DVB-S, DVB-S2, DVB-T**, DVB-T2**
Dimensions including base (W x H x D)	43.7 x 28.9 x 11.1 cm	50.2 x 32.7 x 11.1 cm	56.3 x 35.8 x 11.1 cm
Dimensions excluding base (W x H x D)	43.7 x 26.1 x 4.6 cm	50.2 x 29.9 x 4.6 cm	56.3 x 33.0 x 4.6 cm
Weight including base / Weight excluding base	~ 2.8 kg / ~ 2.5 kg	~ 3.4 kg / ~ 3.1 kg	~ 3.8 kg / ~ 3.5 kg
VESA standard mounting pattern	100 x 100 mm	100 x 100 mm	100 x 100 mm
Operating voltage	12V DC / 24V DC / 230V AC[1] [1]requires mains power adapter	12V DC / 24V DC / 230V AC[1] [1]requires mains power adapter	12V DC / 24V DC / 230V AC[1] [1]requires mains power adapter
Ports			
2 x HDMI	✔	✔	✔
2 x USB 2.0	Video / audio / photo	Video / audio / photo	Video / audio / photo
3 x Cinch (RCA)	Analogue audio / FBAS In	Analogue audio / FBAS In	Analogue audio / FBAS In
3.5-mm stereo jack	Headphone jack	Headphone jack	Headphone jack
Digital audio output, coaxial (RCA)	✔	✔	✔
On / Off mains switch	✔	✔	✔
CI / CI+ module slot	✔	✔	✔
Scope of supply			
TV set	✔	✔	✔
Base	✔	✔	✔
Power cable 12 V / 24 V (with on-board system connector)	✔	✔	✔
Remote control	✔	✔	✔
Mains power adapter 110 V... 240 V AC with EURO mains plug	✔	✔	✔

Specifications	HD receiver „Europe"
Tuner DVB-S / DVB-S2	✔
Image format support	576p, 720p, 1080i oder 1080p
Audio-Decoding	MPEG2 / Dolby AC-3
Audio-Modi	Mono / dual audio-channel, Stereo, Joint Stereo
Teletext	✔
PVR function: Recording and playback with an external hard drive via USB	✔
EPG: electronic program guide including timer programming	✔
Weight	1,2 kg
Dimensions (W x H x D)	~ 27.2 x 6.3 x 15.5 cm
Supply Voltage 12 V – 24 V DC (area of operations 10.5 V – 30 V)	12 V - 24 V
Standby Voltage	~ 10 mA (0 mA in sleep mode)
Power button	✔
Ports	
HDMI input - for connection to external sources, eg. DVD-Player	✔
HDMI output - for connection to a LCD / LED TV-System	✔
Cinch SD-Video / L / R Output	✔
Digital Audio output (coaxial) for connection to an external audio amplifier or stereo system	✔
USB 2.0	✔
SDHC card slot	✔
CI module slot	CI
Headphone output	✔
EXT-IR for connection of an additional infrared-receiver incl. 3.5 mm jack plug	✔

*Energy consumption XYZ kWh per year on the basis of a daily four-hour operation of the television on 365 days. The daily energy consumption depends on the type of use of the TV.

**Terrestrial antenna not included in supply.

Product line	Oyster® 65 / 85	Oyster® Internet	Oyster® SAT-DOM GS	Oyster® SAT-DOM ST
Full-automatic satellite antenna	✔	✔	✔	✔
Manual satellite antenna	-	-	-	-
Satellite-system – Solar-system	-	-	-	-
Satellite-system – Internet-system	-	✔	-	-
Manual / full automatic alignment				
Full automatic alignment within 30 - 60 seconds	✔	✔	✔	✔
Manual alignment available	possible	possible	-	-
Full automatic satellite aiming and identification	✔	✔	✔	✔
Full automatic satellite changing by program change	✔	✔	✔	✔
Dimensions				
Dish size / dimensions	Ø 65 / 85 cm	Ø 85 cm	Ø 42 cm	Ø 42 cm
Reception range (TV and radio)	2 / 1	1	4	4
Height	~ 22 cm	~ 23 cm	~ 38 cm	~ 38 cm
Weight	~ 14 kg	~ 16 kg	~ 7 kg	~ 7 kg
LNB and SKEW features				
Single LNB	✔	✔	✔	✔
TWIN LNB available	optional	-	-	-
Electronical SKEW available	optional	✔	-	-
Electronical TWIN SKEW available	optional	-	-	-
Mechanical SKEW	✔	-	-	-
Specific features				
Innovative swivel-head technology	✔	✔	-	-
Operation while driving available	-	-	✔	-
Automatic closing as vehicle starts	✔	✔	-	-
Rotation-axis locked when antenna is retracted	✔	✔	-	-
Water-resistant and hail-resistant construction	✔	✔	✔	✔
Max. allowed speed app. 130 km/h	✔	✔	✔	✔

Power supply variant	variant				
Supply Voltage (vehicle voltage)	Vision[1]	12 V / 24 V	-	12 V / 24 V	12 V / 24 V
	HDTV[2]	12 V / 24 V	12 V / 24 V	12 V / 24 V	12 V / 24 V
	TV - 19" / 21.5" / 24"[3]	12 V / 24 V	-	-	12 V / 24 V
Max. power consumption during satellite-tracking / sun-tracking	Vision[1]	7 A	-	1.3 A at 12 V / 0.7 A at 24 V	1.3 A at 12V / 0.7 A at 24 V
	HDTV[2]	7 A	8 A	2.1 A at 12 V / 1.7 A at 24 V	2.1 A at 12 V / 1.7 A at 24 V
	TV - 19" / 21.5" / 24"[3]	10 A	-	-	10 A
Power consumption during receiving	Vision[1]	15 mA	-	1.3 A at 12 V / 0.7 A at 24 V	100 mA
	HDTV[2]	800 mA	3A (internet operating) 800 mA (TV-operating, modem off)	2.1 A at 12 V / 1.7 A at 24 V	900 mA
	TV - 19" / 21.5" / 24"[3]	max. 23 W / 26 W / 35 W	-	-	max. 22 W / 26 W / 35 W
Power consumption Standby (Betrieb = operation)	Vision[1]	15 mA	-	35 mA	35 mA
	HDTV[2]	10 mA / 0 mA	10 mA / 0 mA	10 mA / 0 mA (35 mA)	10 mA / 0 mA (35 mA)
	TV - 19" / 21.5" / 24"[3]	0.5 W	-	-	0.5 W

Energy consumption „Oyster® TV"	19" / 47 cm	21.5" / 55 cm	24" / 61 cm
EU energy efficiency category	B	B	B

Cytrac® DX	CARO®	CARO® MA	SamYSolar®+	SunMover®
✔	✔	-	✔	-
-	-	✔	-	-
-	-	-	✔	-
-	-	-	-	-
✔	✔	-	✔	✔
possible	possible	✔	possible	-
✔	✔	-	✔	-
✔	✔	-	✔	-
56 cm x 56 cm	54 cm x 54 cm	54 cm x 54 cm	Ø 65 cm	-
3	4	5	2	-
~ 14 cm	~ 14 cm	~ 19 cm	~ 20 cm	~ 17 cm
~ 17 kg	~ 14 kg	~ 9 kg	~ 24 kg	~ 24 kg
✔	✔	✔	✔	-
optional	-	-	-	-
-	-	-	-	-
-	-	-	-	-
✔	✔	✔	✔	-
-	-	-	-	-
-	-	-	-	-
✔	✔	-	✔	✔
✔	✔	✔	✔	✔
✔	✔	✔	✔	✔
✔	✔	✔	✔	✔
12 V / 24 V	12 V / 24 V	12 V / 24 V	12 V	12 V
12 V / 24 V	12 V / 24 V	12 V / 24 V	-	-
12 V / 24 V	12 V / 24 V	-	-	-
7 A	7 A	400 mA	10 A	10 A
7 A	7 A	800 mA	-	-
10 A	10 A	-	-	-
15 mA	15 mA	0 mA	max 40 mA / 0 at day	max 40 mA / 0 at day
800 mA	800 mA	800 mA	-	-
max. 23 W / 26 W / 35 W	max. 23 W / 26 W / 35 W	-	-	-
15 mA	15 mA	0 mA	max 40 mA / 0 at day	max 40 mA / 0 at day
10 mA / 0 mA	10 mA / 0 mA	10 mA / 0 mA	-	-
0.5 W	0.5 W	-	-	-

Reception range 1

Reception range 2

Reception range 3

Reception range 4

Reception range 5

ASTRA 2 „SKY“

ASTRA 2 „Freesat“

1) Vision-range: without TV / HDTV Receiver 2) HDTV: incl. HDTV-Receiver, without TV 3) “Oyster-TV”: incl. TV with system remote control

Technical changes reserved

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