

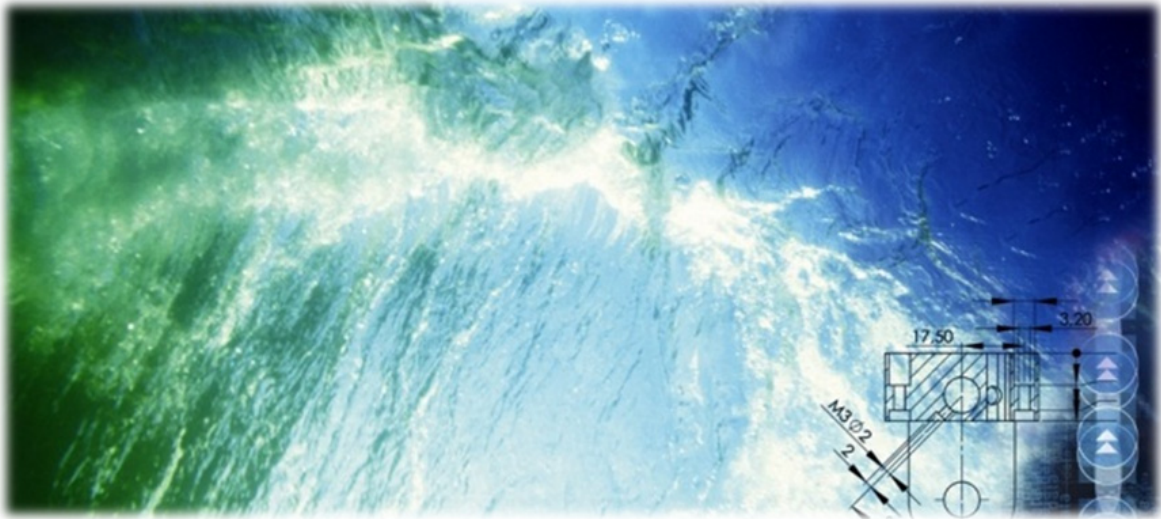


INSTALLATION AND MAINTENANCE MANUAL

Digital Cage Access Point - Digital CAP

A	04.02.15	Approved	EBL	IL
Rev	Date	Issued	Issued by	Approved

Part name:	DC10000790	Project number:	88073-01
-------------------	------------	------------------------	----------



For a thorough introduction of Your AKVA product, we ask that all users read this entire manual. If questions occur, contact us!

The information in this document is subject to change without notice and should not be construed as a commitment by AKVA group ASA.

AKVA group ASA assumes no responsibility for any errors that may appear in this document.

In no event shall AKVA group ASA be liable for incidental or consequential damages arising from use of this document or of the software and hardware described in this document.

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

This document can also be read and downloaded from our web site, see www.akvagroup.com/products/user-manuals

© 2015 AKVA group ASA (NO)
AKVA group ASA

Table of contents

1	Safety	4
1.1	Safety symbols used in the manual	4
1.2	Receiving a new product	5
1.3	Plug-caps	5
1.4	Connection points and cable	6
1.5	Installation	6
1.6	Maintenance	6
2	Introduction	7
2.1	Contact information	8
3	Information	9
3.1	Specifications for Akvasmart Digital CAP.....	10
4	Installation	11
4.1	Before taking the Digital CAP to the cage	11
4.2	Attach extension pole to the connection box	14
4.3	Attach the Digital CAP top	15
5	Maintenance	16
5.1	Cleaning	16
5.2	Tighten up	16
5.3	Maintenance registration for Akvasmart Digital CAP	17
	Appendix A - Index	18
	Appendix B - Deviation form	19
	Appendix C - Notes	20

1 Safety

Safety for the users of our equipment is top focus when AKVA group ASA develop new products and product manuals.

We therefor strongly recommend that everyone that use the equipment, all that perform any type of repairs, service or other maintenance to the product, and all that work in areas where the product is installed read this entire manual and at least this safety chapter.

This recommendation is based on both personnel safety as well as the desire to keep all products in order as long as expected, and to avoid any damages risked if the safety instructions from this manual are not followed.

1.1 Safety symbols used in the manual

The following symbols are used in this manual:



Information



Show caution, danger of damaging equipment and mild injuries to personnel



Show caution, damages to personnel may occur

1.1.1 Other symbols used in the manual



See chapter or page for more information or further instructions.

1.2 Receiving a new product



Always check that the delivery is complete according to the service note. If the order is not complete or if any other errors are discovered, contact AKVA group immediately.

AKVA group ASA provides a 1 year warranty covering manufacturer's defects. The warranty is effective upon date of shipment to original recipient.

The following are reasons for a void of warranty:

- poor treatment of the system due to negligence of preventive recommendations and other instructions in this manual
- improper usage of power sources
- the Digital CAP is opened without express written consent of an AKVA group3 employee.

1.3 Plug-caps



Keep the plug caps and their attachments in order, in place and intact to avoid damages and to assure a long lasting product. If plug caps are damaged or are not being used as described in this manual, the warranty may expire or be reduced.



If a plug cap is loosened from the equipment, contact AKVA immediately to order a new cap.

Hint!

Keep a backup storage of plug caps to make sure that all of the products connections will always be protected

1.4 Connection points and cable

Cables and connection points need to be treated with great caution, to avoid the risk of reducing the product's operating time.



Camera and sensor cables does not bear any twirls, twists or sharp bends

1.5 Installation



Cages are exposed to a lot of weather and winds, creating movements in the cage and thus the Digital CAP cage rail fastening points. Therefore there is a risk that bolts and nuts are loosened in the fastening brackets. Therefore, it is important to tighten up all bolts regularly.

1.6 Maintenance



See maintenance instructions in chapter 5 to ensure a long lasting product.

2 Introduction



This user manual is part of the equipment delivered with AKVAsmart Digital CAP. Preserve the manual for as long as the feed system is used, and make sure that all changes to the equipment are being noted in the back of the manual.

Thank you for choosing AKVA group ASA as supplier for your digital cage access point. Do not hesitate contacting us if you need more information regarding installation, use or maintenance for your product.

With our four house brands, AKVA group ASA is a world leading supplier of technical aquaculture equipment. Since 1980 we have developed and produced fish farming equipment, both for cages at sea and for land based sites. AKVA represents an industrial standard, which is presumed to be the key to the future. Research, project management, fast deliveries and customer follow-up have been in focus to ensure that we deliver the best possible and most cost efficient equipment, and thus contributing to preserving sustainable aquaculture and a positive development within the aquaculture industry.

We have a wide variety of products, including plastic and steel cages, high pressure washers, net cleaners, boats, feed barges, feeding systems, cameras, sensor systems, under water lighting, software for fish farming and recycling systems.

We practice continuous product development to improve the equipment's safety, functions, manner of operation and working reliability. This manual enables the operator to install and maintain AKVAsmart Digital CAP in a safe and economically way.

All of our equipment is pre-installed, tested and delivered from our own production department or from approved collaborators. This means that our customers have total control over

components to choose from, grouping collocation, testing and deliveries. Our production staff consists of people with great expertise and enthusiasm to produce the best possible products for our customers. Having our own production site gives our customers excellent service in case something should go wrong, or if any assistance is needed. We hold most of the parts for our products in stock, and our service staff is available on the telephone or on location in order to assist you if necessary.



This entire manual, and especially the safety chapter must be read and understood before commencing any work on the Digital CAP

Before any work is done with the Digital CAP, we recommend that all users are properly trained by AKVA group ASA. All users need to get to know this manual and its contents, and perform procedures for installation and maintenance as described here to ensure reliable operations and a long lasting product. This manual answers most day to day questions and gives a thorough description of how to install and maintain the Digital CAP.

2.1 Contact information

AKVA group ASA - Bryne, Norge (Head office)

Nordlysveien 4

PO. Box 271

4340 Bryne

tlf. 51 77 85 00, fax. 51 77 85 01

Support Hardware og AKVAconnect

tlf. 51 77 85 03

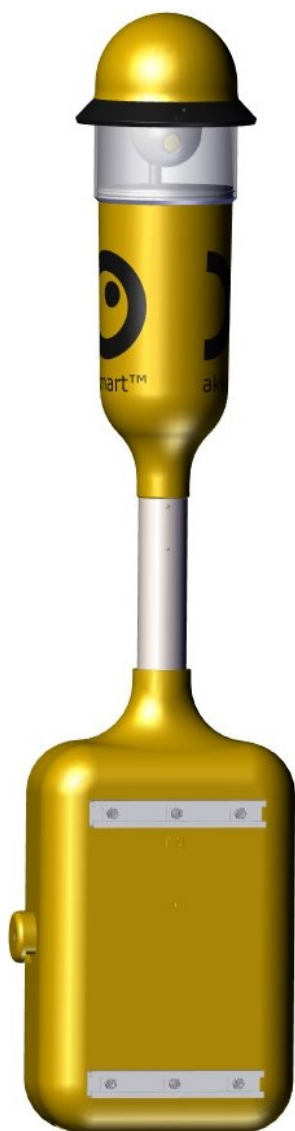
supportakvasmart@akvagroup.com

Support Fishtalk

tlf. 73 84 28 20

supportfishtalk@akvagroup.com

3 Information



Akvasmart Digital CAP (Cage Access Point) is a wireless access point for both under water cameras and winch. With transmission of up to 6 parallel video channels, this system will fit any fish farm.

One under water video camera may be connected to each unit, in addition to an integrated surface surveillance camera (mounted in the Digital CAP top).

The new Digital CAP has a powerful transmitter, external channel selector, 360 degree adjustable surface camera and directional antenna.

Video images are transmitted wireless from each cage edge to the main base.

Power transfer via 230V hard wired electricity from the feed barge. For short term backup, a 60Ah battery may be used. Battery size (l x b x h): 270 x 175 x 225mm.

Item numbers for battery options:

- Battery Gel 12V/60Ah: 0101887
- Battery 12V/80Ah: 10191

The Digital CAP house is made of aluminum, polycarbonate (PC)/Lexan and stainless steel. All is water proof and sprout safe.

All cables are connected inside the connection box.

3.1 Specifications for Akvasmart Digital CAP

Built-in surface camera	1 pcs.
Resolution	704x576
Light sensitivity	1.0Lux (Colour) - 0.3Lux (B/W)
Angle of view	360° Pan/Tilt 12x700m
Frequency - Ethernet	5.8 GHz Cambium *
Power Supply	12V/230VAC**
Power Consumption	1-6A
Materials	Aluminum/PC/Stainless Steel
Size - width x height	Ø280 x 770mm (Ø10.9" x 30.3")
Weight	12.5kg
Ethernet	2 pcs. Phoenix contact 8 pin RJ45 w/clips
Underwater Camera connections	1 pcs. Amphenol 7 pins female
Camera Winch connections	1 pcs. Amphenol 7 pins female
Power connections	1 pcs. Amphenol 4 pins female

* Frequency may vary from country to country

** Via AC adapter (extra)

4 Installation



Safety garments, for instance safety vest, must be used during labour at or by cages



Digital CAP top contains a camera and must therefore be treated very carefully



Handle all equipment and parts with care, and make sure that none of them fall into the sea during the installation process



Fasten connection box to a cage pole first, then attach the top of the Digital CAP to the connection box, for easier handling during the installation



Different types of cages have different types of poles. Fasten the Digital CAP using brackets that fits the specific cage pole

4.1 Before taking the Digital CAP to the cage

The rails for fastening brackets should be attached to the back side of the connection box when delivered. If this is not done, both rails must be attached before taking the Digital CAP to the cage.

Also fasten the brackets to the rails before taking the Digital CAP to the cage.

The back side of the Digital CAP connection box have 2 x 3 holes (3 upper and 3 lower holes) for fastening the rails ->



Necessary equipment:



- everything from the delivery (check service note)
- two open end spanners (wrenches)

4.1.1 Single poles

This method goes for Polarcirkel plastic cage rails as well as single pole steel cage rails.

Procedure:

1 Before taking the Digital CAP to the cage edge, the following must be performed:

a Attach the upper rail to the back of the Digital CAP connection box firstly through the middle hole

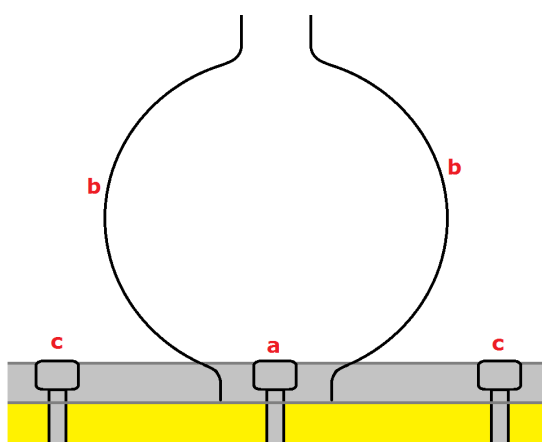
b Thread the two brackets parts in to the rail



Make sure that the brackets are placed correctly in the rail, according to the illustration to the left

c Fasten the rail end bolts

d Repeat this procedure as the lower rail is attached to the Digital CAP connection box



2 Bring connection box, Digital CAP top, fastening bolts and necessary equipment from page 10 to the cage edge where the Digital CAP is being installed



Digital CAP top contains a camera and must therefore be treated very carefully

3 Place the Digital CAP connection box next to the desired cage pole

4 Place the brackets around the pole and fasten them with bolts and nuts, tighten well to make sure that they sit properly when the cage moves.



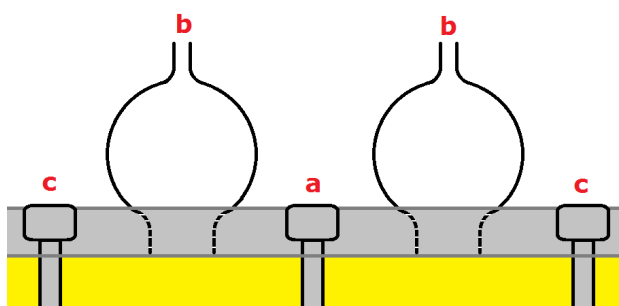
4.1.2 Double poles

AKVA groups Wavemaster steel cages have double rail poles, and requires a different kind of fastening than for single poles.

Procedure:

1 Before taking the Digital CAP to the cage edge, the following must be performed:

- a Attach the upper rail to the back of the Digital CAP connection box firstly through the middle hole
- b Thread two bracket parts in to each side of the rail



! *Make sure that the brackets are placed correctly in the rail, according to the illustration to the left*

c Fasten the rail end bolts

d Repeat this procedure as the lower rail is attached to the Digital CAP connection box



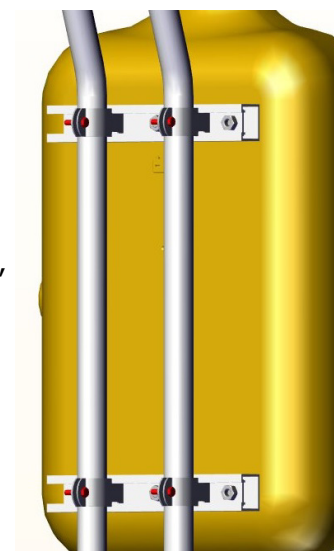
2 Bring connection box, Digital CAP top, fastening bolts and necessary equipment from page 10 to the cage edge where the Digital CAP is being installed



Digital CAP top contains a camera and must therefore be treated very carefully

3 Place the CAP connection box next to the desired cage poles

4 Place the brackets around the poles and fasten them with bolts and nuts, sure that they sit properly when the cage moves.



4.2 Attach extension pole to the connection box

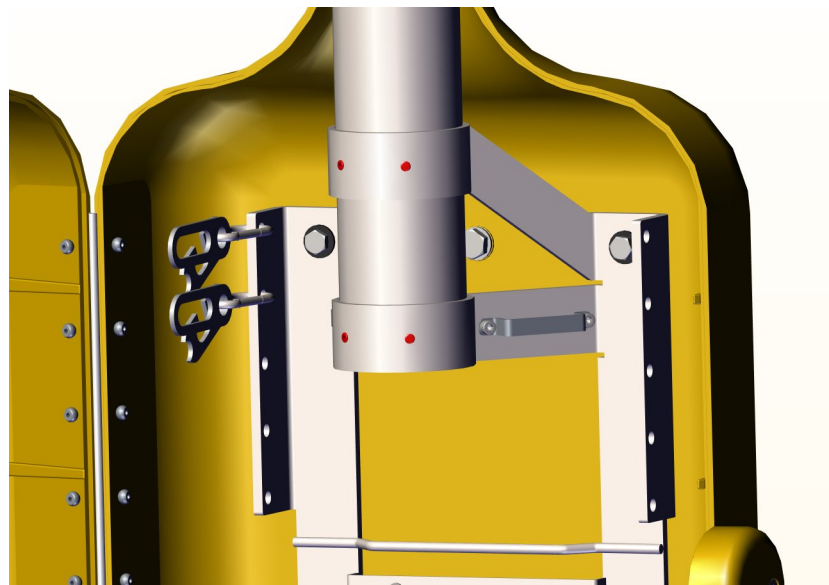
When the connection box is attached properly to the cage pole(s), and before the Digital CAP top can be attached, the pole in between these parts must be fastened to the connection box.

Necessary equipment

- extension pole
- 3mm Umbraco key
- 4 x M6 bolts

Procedure

- 1 Open the connection box
- 2 Tread the pole in the top opening of the connection box
- 3 Fasten all four bolts (*marked with red in the illustration below*) to attach the extension pole to the connection box
- 4 Close the connection box.



4.3 Attach the Digital CAP top

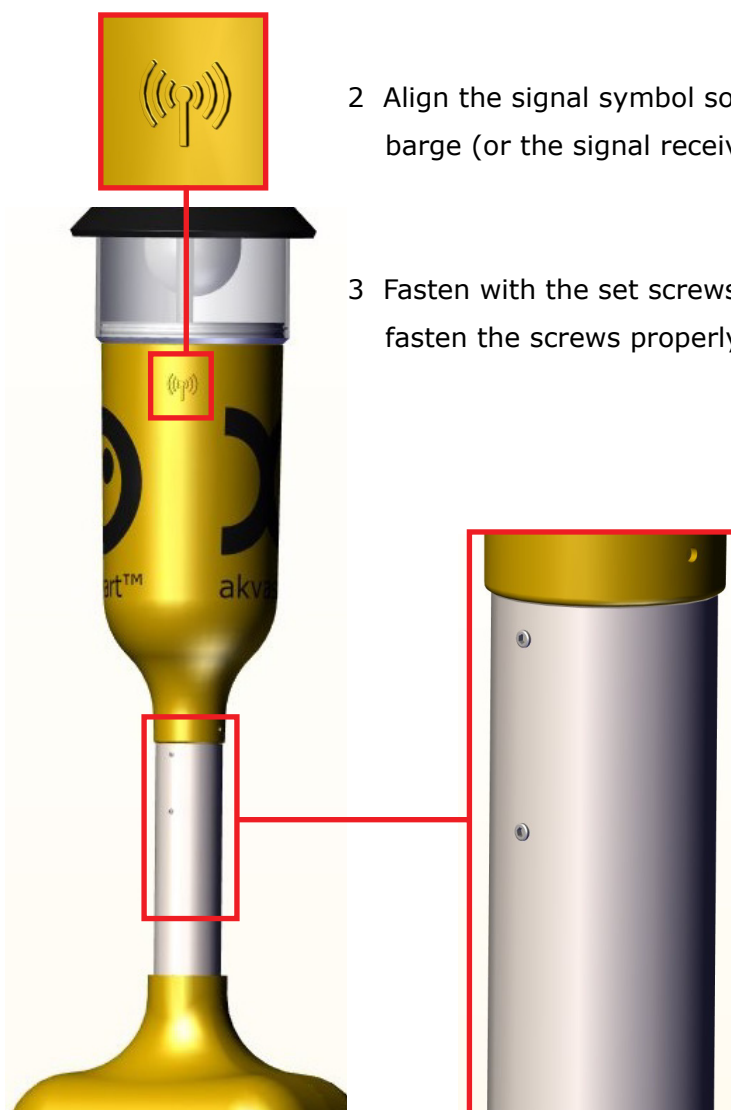
When the connection box is attached properly to the cage pole(s), and the extension pole is in place, the Digital CAP top may be attached.

Necessary equipment

- two M6 set screws
- 3mm Unbraco-key

Procedure:

- 1 Tread the Digital CAP on to the extension pole
- 2 Align the signal symbol so that it points directly towards the barge (or the signal receiver)
- 3 Fasten with the set screws, use the 3mm Unbraco key to fasten the screws properly.



5 Maintenance



Safety garments, for instance safety vest, must be used during labour at or by cages

5.1 Cleaning

Clean the inside of the connection box once a month, use a soft cloth, warm water and a mild detergent. Wipe off all excessive water inside, remember to wipe the cables as well.

Hose the Digital CAP with fresh water once a week. Always use normal water pressure, no high pressure cleaner! Spray silicone grease to fastening bits, hinges and locks.



Make sure that the Digital CAP connection box is properly closed before hosing it down

5.2 Tighten up

Tighten up all fastening bits to avoid that the Digital CAP falls off the cage end after movements in the sea and cage. Check and tighten all fastening bolts at least once a month, and more often during bad weather seasons and periods.

Weekly maintenance: outside cleaning, spray fastening bits, hinges and locks with grease

Monthly maintenance: inside cleaning, check and tighten all fastening bolts, check cables and cable connections



All maintenance tasks must be performed more often during stormy seasons and periods

5.3 Maintenance registration for Akvsmart Digital CAP



Make copies of this form before filling anything in

Date	Task performed	Signature	Date for next maintenance

Appendix A - Index

A

antenna 9

B

bolts 6, 12-14, 16

bracket 6, 11-3

C

cable 6, 9, 16

cable connections 16

cage pole 11-13, 15

camera 6, 9-13

channel selector 9

cleaning 16

connection box 9, 11-16

D

damages 4, 5

F

fresh water 16

I

information 4, 9

installation 6, 11

M

maintenance 6, 16

P

plastic cage 12

plug caps 5

power transfer 9

procedure 12-15

S

safety 4

safety garments 11, 16

service note 5, 11

signal symbol 15

siliconc grease 16

surface camera 9

symbols 4

T

tighten 6, 12, 13, 16

transmitter 9

V

video channels 9

W

warranty 5

weather 6, 16

wireless 9

Appendix B - Deviation form



*Make copies of this form before filling **anything** in.*

Deviation control nr.:	
-------------------------------	--

Unit:	Producer:	Prod.no.:	Purchase year:

Deviation description:
Follow up proposition:
Date and signature, declarer:

Follow up directed:
Status:
New action for deviation no.:
Date and signature, follow up:

