

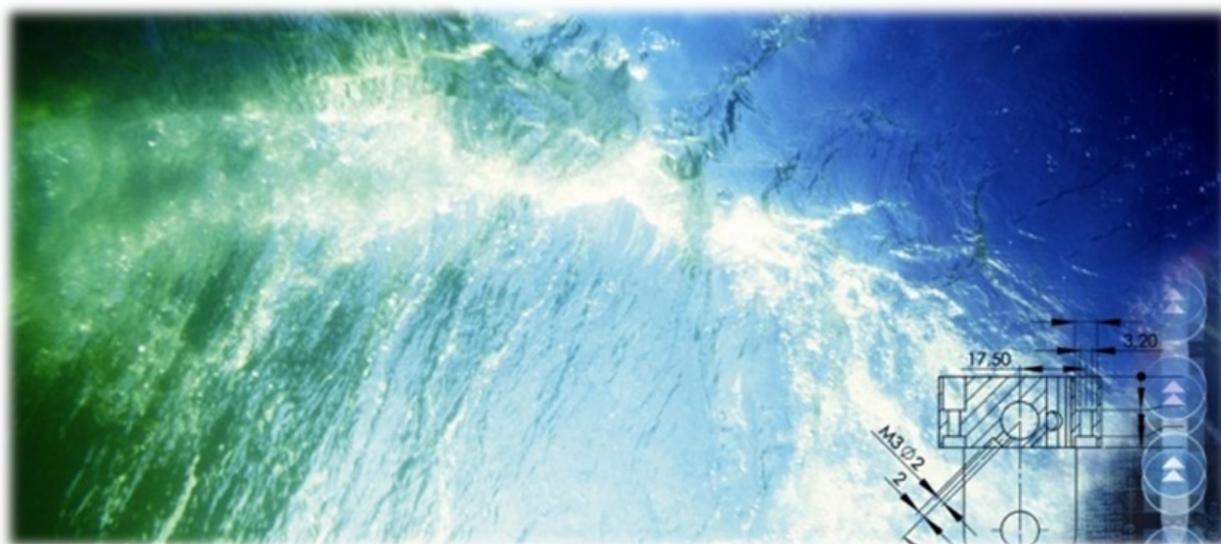


INSTALLATION AND MAINTENANCE MANUAL

Cage Access Point - Akvasmart CAP

A	29.05.15	Approved (ECO-0000737)	EBL	IL
Rev	Date	Issued	Issued by	Approved

Document no.:	DC10000878	Document part no.:	10001529	Project no.:	88073-01
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For en grundig innføring i ditt AKVA produkt, ber vi deg lese gjennom hele denne manualen. Ved spørsmål, ta kontakt.

Informasjonen i dette dokumentet kan forandres uten påminnelser, og skal ikke ses på som en forpliktelse fra AKVA group ASA.

AKVA group ASA fraskriver seg alt ansvar for feil som kan fremstå i dette dokumentet.

AKVA group ASA kan ikke under noen omstendigheter holdes ansvarlig for feil på utstyr, ei heller i software eller hardware, som følge av å ha brukt dette dokumentet.

Vi reserverer oss alle rettigheter i dokumentet og dets innhold. Reproduksjon og bruk til en tredje part uten vår tydelig uttrykte myndighet er strengt forbudt.

Dette dokumentet kan også leses eller lastes ned fra våre hjemmesider, se www.akvagroup.com/produkter/brukermanualer

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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 a desire to keep the products in order and avoid damages risked if the safety instructions 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

Make sure that all parts are delivered according to shipment note.

If the order should not be complete, or if anything has been injured during transportation, contact AKVA group immediately, use contact information found in the back of this manual.



1.3 Warranty

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 or from improper usage of power sources
- If the Field Computer and/or the camera units are opened without express written consent of an AKVA group employee

1.4 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 not 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.

1.5 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.

1.6 Installation

Cages are exposed to a lot of weather and winds, creating movements in the cage and thus the 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.

1.7 Maintenance



See maintenance instructions in chapter 4 to ensure a long lasting product.

2 Introduction



This user manual is part of the equipment delivered with Akvasmart CAP. Keep 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 this manual.

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

The purpose of this manual is to make the user able to install and maintain the Akvasmart CAP in a safe and economical way. The manual will show how to install it to the cage, how to maintain the device, and hopefully answer most day to day questions.

If there is anything you do not find the answer to in this manual, please contact us for assistance and help to find a solution to any problems. Contact the AKVA service department, your subcontractor, your local AKCA office or our main office in Norway for assistance and help.

2.1 How to use this manual

This manual describes how to install and maintain Akvasmart CAP in the best and safest possible way. This entire manual must be read and understood by ALL users prior to installation and use. Site owner and farm manager are responsible for that all personnel and users know of and understand the contents of this manual.

Before the first chapter, is a table of contents. The headlines works as links to their respective chapter in the .pdf-file.

Chapter 1 is the most important chapter of this manual, and includes safety precautions ensuring safest possible installation, use and maintenance.

Chapter 2 contains information on AKVA group and Akvasmart Cap, as well as this manual instruction.

Chapter 3 describes how to install the Akvasmart CAP in various types of cages. Chapter 4 contains maintenance instructions and a maintenance registration form.

Four appendixes are found in the back of the manual: Index, with links to the rest of the manual in the .pdf-document, a deviation form for all deviations with the system, pages for notes about new and extra information are also in the back of the manual and AKVA contact information.



This entire manual must be read and understood, as well as used as aid during installation and maintenance of the Akvasmart CAP

2.2 About AKVA group

With four main 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 hatcheries. AKVA represents an industrial standard, which is presumed to be the turn key to the future. Research, project management, fast deliveries and customer follow-up have been our focus to ensure that we contribute to a positive development within the agriculture industry. Our goal is to deliver the best possible and most cost efficient equipment in order to keep preserving sustainable farming.

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

AKVA has a continuous development of products, and we continue to improve product safety, functions, range of use and reliability. All of our equipment is pre-installed, tested and delivered from our own production department. This means that our customers have total control over which components you can choose from, grouping collocation, testing and deliveries.

Our production staff consists of people with great expertise and engagement for producing the best possible products for you. Having our own production site gives you excellent service in case something should go wrong, or if you are in need of any assistance. Our service staff is available on the telephone or on location in order to assist you if necessary. Safety, both for users and equipment is our main focus when developing products and product manuals.

2.3 About Akvsmart CAP



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

The new 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 either via 12V battery or from 230V hard wired electricity from the feed barge.

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

Inside the fuse box, there is room for a battery, and all cables are ready to use here.

3 Installation



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



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



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



Different types of cages have different types of rails. Fasten the CAP using clamps that fit the specific cage pole

The rails for fastening clamps should be attached to the fuse box when delivered. If this is not done, we recommend attaching both rails before taking them to the cage.

Fasten clamps to the rails before taking the CAP to the cage.

The back side of the CAP fuse 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)

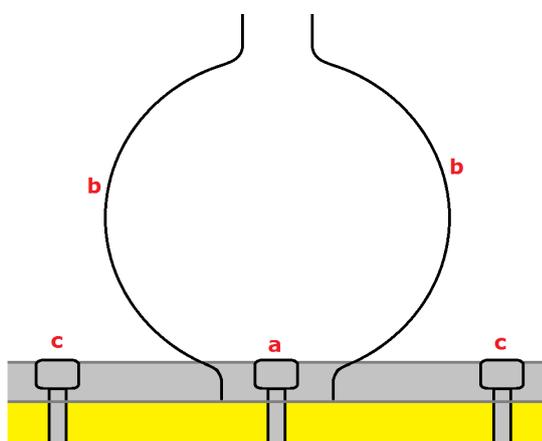
3.1 Single poles

This method goes for round plastic cage rails as well as squared steel cage rails.

Procedure:

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

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



b Thread the two clamp parts in to the rail

! *Make sure that the clamps 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 CAP fuse box

2 Bring fuse box, CAP top, fastening bolts and necessary equipment to the desired position on the cage edge

3 Place the CAP fuse box next to the desired cage pole

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



3.2 Double poles

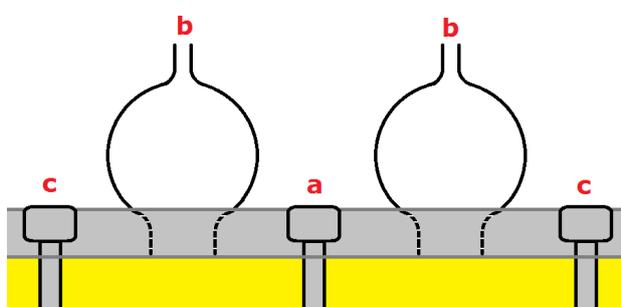
AKVA's steel cages have double rail poles, and requires a different kind of fastening than for single poles.

Procedure:

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

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

b Thread two clamp parts in to each side of the rail



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

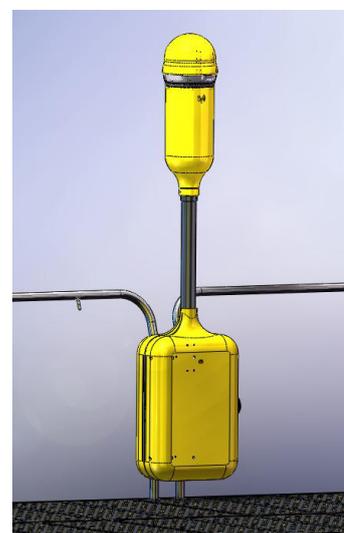
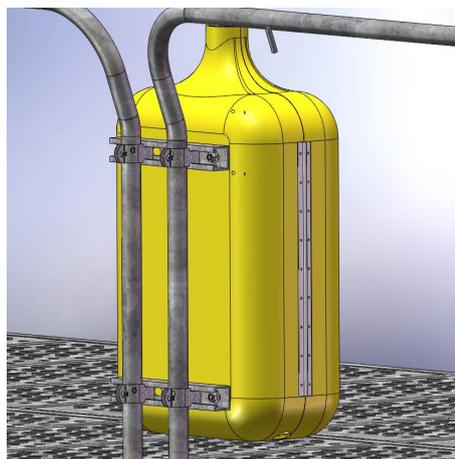
c Fasten the rail end bolts

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

2 Bring fuse box, CAP top, fastening bolts and necessary equipment to the desired position on the cage edge

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

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



4 Maintenance

4.1 Cleaning

Clean the inside of the fuse 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 CAP with fresh water once a week (use normal water pressure, no high pressure cleaner!). Spray siliconc grease to fastening bits, hinges and locks.



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

4.2 Tighten up

Tighten up all fastening bits to avoid that the CAP falls off the cage end after movements in the sea and cage. Check 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

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Make copies of this form before filling anything in

Deviation control nr.:	
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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:

Appendix D - Contact information

NORWAY - AKVA group ASA

Head Office

Nordlysveien 4

PO. Box 271

N-4340 Bryne

Norway

tel. +47 - 51 77 85 00

fax. +47 - 51 77 85 01

Support Hardware and AKVAconnect

tel. + 47 - 51 77 85 03

supportakvasmart@akvagroup.com

Support Fishtalk

tel. +47 - 73 84 28 20

supportfishtalk@akvagroup.com

DENMARK

AKVA group Denmark AS (Land Based)

Bødkervej 7A, 1.

7000 Fredericia, Denmark

t. +45 7551 3211

f. +45 7551 4211

AKVA group Denmark AS (Land based)

Roskildevej 342, Building 2

2630 Taastrup, Denmark

t. +47 7551 3211

SWEEDEN

AKVA group - Agent: Modus Trading AB

Färjegårdarne 7

78461 Borlänge, Sweden

t. +46 - (0)243 883 22

f. +46 - (0)243 21 17 78

modus@dalnet.se

FINLAND

AKVA group - Agent: OY MG Trading AB

Ivisnäsplanen 2E

SF-02260 Esbo, Finland

t. +358 - 9867 68422

f. +358 - 9867 68420

ICELAND

AKVA group - Agent

Wise lausnir ehf

Borgartun 26, 105 Reykjavik, Iceland

t. + 354 545 3200

f. +354 545 3232

UK (SCOTLAND)

AKVA group Scotland Ltd.

36F Shore Street

Inverness, Scotland, UK

IV1 1NF

t. +44 (0)1463 221 444

f. +44 (0)1463 223 535

GREECE

Akvasmart/Fishtalk - Agent:
Zellas Trading Company
Dodekanisou Str., GR-174 56
Alimos, Athens, GREECE
t. +30 - 210 7014881
f. +30 - 210 7012666
zellastrading@ath.forthnet.gr

TURKEY

AKVA group Kültür
Balıkçılığı Ekipmanları Ltd. Şti.
Yeni Küçük Sanayi Sitesi No:1-C19 Baharlı Köyü
48200 Milas, Muğla, TURKEY
t. +90 - 252 - 374 - 6434
f. +90 - 252 - 374 - 6432

TUNISIE

AKVA group - Agent: Société Méditerranéenne
d` Etudes et Conseils
72, Avenue Habib Bourguiba
2080 Ariana, Tunisie
t. +216 71 700 453
f. +216 71 700 297
smechg@gnet.tn

CANADA

AKVA group North America Inc.
1495 Baikie Road, Campbell River
BC, V9W 1R9 Canada
t. +1 - 250-286-8802
f. +1 - 250-286-8805

AKVA group North America Inc.
5251 Duke Street, Suite 606, Duke Tower,
Scotia Square
Halifax, NS, B3J 1P3 Canada
t. +1-902-482-2663
f. +1 - 902-405-3373

CHILE

AKVA group Chile
Ruta 5 Sur Km.
1030, Puerto Montt, Chile
t. +56 - 65 250250
f. +56 - 65 257119

AUSTRALIA

AKVA group Australasia
t. +61 400 167 188
cschafer@akvagroup.com