



Leckage-Protection Offline for Gate Valves

SKU: KFRFLO01

Version: 1.0

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1. Product Description

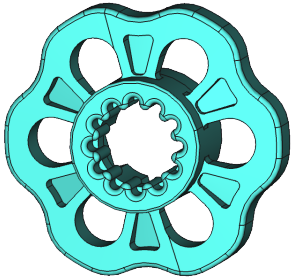
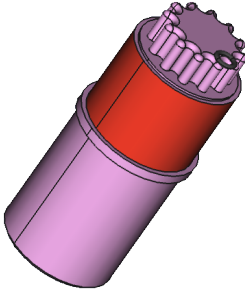
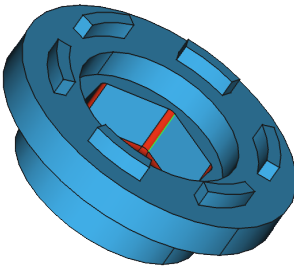
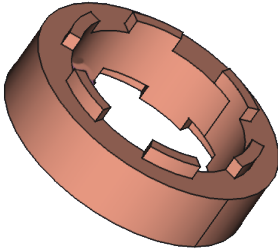
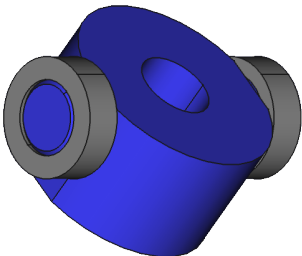
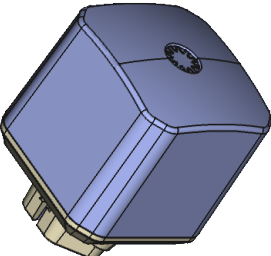
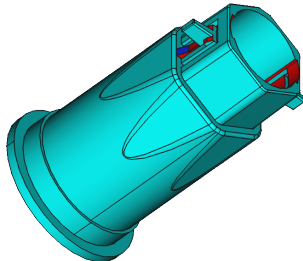
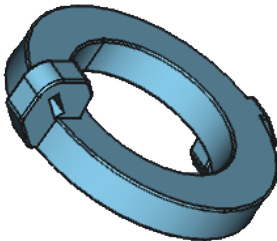
The offline leakage protection system 'KFRFLO' detects water leaks using multiple water sensors distributed throughout the house and shuts off the water supply in the event of a leak. The unique feature of this system is that **it does not require an app, internet, or Wi-Fi**.

The retrofit motor is installed in place of the handwheel on the main shut-off valve. The product bundle includes three battery-operated water sensors that are paired with the motor and distributed around the house.

Communication between the sensors and the motor uses the highly reliable, standardized LoRa wireless technology, specifically designed for such applications. No additional equipment like a gateway is needed. All sensors communicate directly with the motor in case of an alarm, making the system installation very straightforward.

In the event of an alarm, the affected sensor emits a loud audible signal and flashes red. The motor shuts off the water, also emitting an audible signal and flashing red. The alarm can be cleared, and the water turned back on by pressing the button on the motor.

2. Parts of the Motor

			
Handwheel (H)	Inner Coupling (K)	Adapter (Ax)	Distance Rings (D1,D2)
			
Ball Bearing Seat (Ws)	Motor (M)	Main Body (G)	Bracket (N)

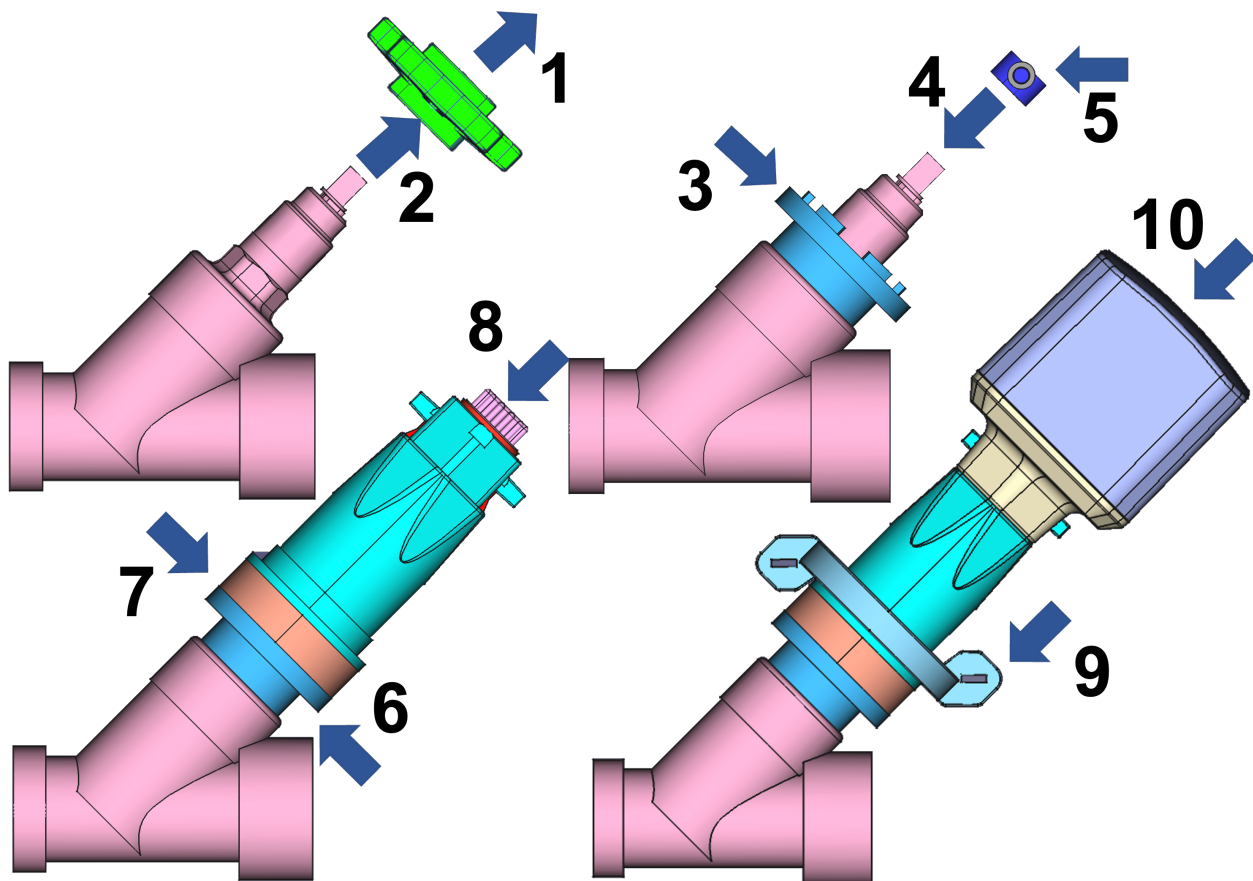
3. Installation of the motor



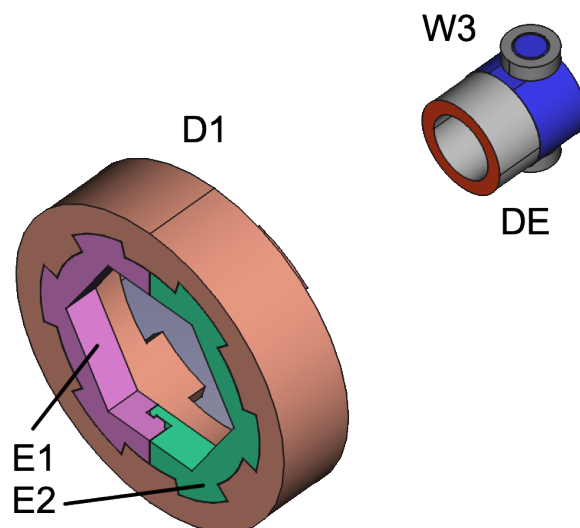
3.1. Mounting the motor on the valve

The motor drive can be used with all commercially available angle seat valves. However, due to the variety of mechanisms, certain adjustments must be made. When installing, the valve should be normally open (installers recommend opening the valve fully and then closing it slightly with approx. 2 clockwise turns).

1. First, loosen the screw in the center of the handwheel using a screwdriver. Some manufacturers do not use the typical green handwheel. The spindle may be hidden under plastic, but will always have a screw on top and a square end. Keep the screw for later use.
2. Now remove the handwheel.
3. Select one of the 4 adapters (A1...A4) for wrench sizes M17, M22, M27, or M30 that fits well onto the bottom of the valve top (hexagonal or rectangular shape). If none of the supplied adapters fits the valve, refer to the "Custom Adapter" section for further guidance.
4. Select the correct ball bearing seat (W1 ... W3) and place it on the spindle. If the spindle is larger than 8x8 mm, which is required for the largest ball bearing seat, this product cannot be used for this valve. If the spindle is smaller than the smallest ball bearing seat of 6x6 mm, the issue can be resolved similarly to the adapter case. See the instructions in the "Custom Adapter" section.
5. Now fix the ball bearing seat with the screw from step 1.
6. Depending on the size of the valve top and spindle, additional spacer rings (D1, D2) may be required on the adapter ring. If the inner coupler (K) cannot be pushed all the way into the main housing (G) without resting on the valve housing, or if the main housing does not reach the already installed adapter ring, a spacer ring (D1 or D2) must be placed between the adapter ring (Ax) and the main housing (G). This is usually the case with rising spindle valves. The spacer rings are 12 or 24 mm in size and can also be combined into a 26 mm ring. The spare handwheel can be used to test the opening and closing of the valve.
7. Now place the housing (G) onto the adapter or spacer ring.
8. Insert the inner coupler into the housing. It must reach over the ball bearings in both the open and closed positions. The housing is transparent for this purpose.
9. The retainer (N) is needed to hold the entire assembly in position if the valve is not installed upright. It is recommended to always use the bracket. The complete device is attached to the pipe using the two included cable ties. The cable ties can be removed at any time. To slide the retainer over the housing, the two tabs on the housing must be slightly pressed together. There are two small notches on the inner ring of the retainer for this purpose.
10. Finally, place the motor head onto the housing. Sometimes the inner coupler must be slightly rotated so that the gear structure of the motor meshes with the inner coupler.



3.2. Valves from Wilhelm Ewe GmbH and Co. KG



The valves from this company have a unique design. You must insert the split ring (E1+E2) into the 24 mm spacer ring (D1) instead of using one of the adapters A1 ... A4. A small additional spacer ring (DE) is placed directly under the ball bearing seat to fix the valve's grease chamber.



3.3. Custom Adapter

If no suitable adapter is available for the valve seat, a custom one must be made. To do this, select an adapter that fits over the valve seat and fill the gap with a two-component resin. This resin is included with the motor. Cut off a piece of the compound with a utility knife and knead it until a uniform color is achieved. Then fill the gaps between the adapter ring and the valve base. After the resin has hardened, the now custom-fit adapter ring can be used.

Note: The resin will adhere firmly to the valve. If this is not desired, lightly oil the valve beforehand. Then the hardened adapter ring can be removed more easily.

Similarly, a ball bearing seat can be adapted for a valve shaft with a square smaller than 6x6 mm. Ensure that the spindle is precisely centered in the ball bearing seat.

3.4. Setting the End Positions of the Motor Drive

Once the motor is mounted and powered, it must determine the correct end positions for the 'OPEN' and 'CLOSE' positions:

1. Manually turn the valve to the 'OPEN' position before the motor is initially installed. According to installer recommendations, the optimal 'OPEN' position is about 2 turns towards 'CLOSE' after reaching the stop in the 'OPEN' direction (counterclockwise).
2. Power the motor.
3. Press the button briefly once. The motor will now move briefly in both directions and determine whether it is in the 'OPEN' or, contrary to the recommendation in step 1, in the 'CLOSE' position. This information is indicated by the color of the LED on the device.
4. If the motor was initially in the 'OPEN' position, the first 'CLOSE' command (either via short button press or external control) will move it fully to the 'CLOSE' position and then slightly reverse. This function is intended to relieve the valve's rubber seal. If the seal has become brittle from long-term closing or aging, this may lead to valve leakage in the 'CLOSE' position. Therefore, this slight reverse function can be disabled.
 - If paired with an internet-enabled Aqua-Scope sensor, use the app in the "Configuration" section.
 - If paired with a non-internet-enabled device or used standalone, the function can be toggled on or off by pressing and holding the button for 6 seconds (6 * buzzer), then releasing.

Once the end positions are recognized, the motor will no longer forcefully drive against the valve's endpoints, but will instead count the required motor turns and approach the endpoints gently.

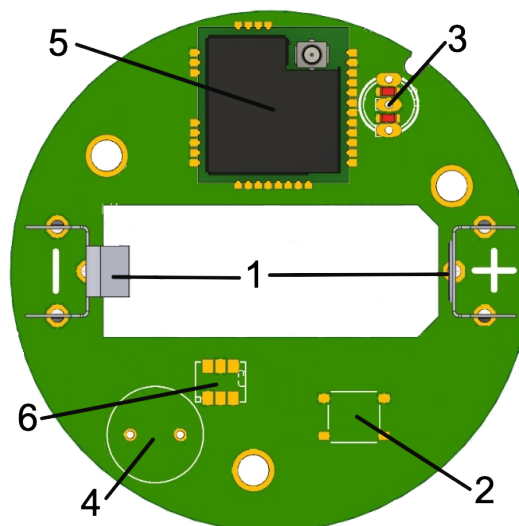


4. Installation and Pairing of the Flood Sensors

The system comes with three water sensors by default, but additional sensors (product code FLOLWE02) can be ordered from the Aqua-Scope shop.

The first step is to insert the CR123 battery. Turn the top of the sensor housing counterclockwise to open the housing. Inside you will see the functional components of the unit:

1. CR123 battery holder. Be sure to insert the battery with the correct polarity. Inserting the battery the wrong way will not damage the electronics, but will drain the battery without any function.
2. Button
3. Dual Color LED
4. Buzzer Sound
5. Computing/Communication Module



After inserting the battery (resp. removing the isolating slip), the device is ready for operation. You can check the function by hitting the button. You will hear a beep and the LED goes on

1. Press the pairing button: Hold the button while inserting the battery. The red and green LEDs will blink simultaneously.
2. Click the motor button twice: This will generate a long tone from the motor, and the two LEDs on the sensor will turn off, indicating a successful pairing.
3. Repeat this process for all water sensors you want to pair. You can connect an unlimited number of sensors to the motor.

When water is detected an alarm packet is sent out, the LED turns red and the device continues beeping.



Close the housing by turning the top of the housing 1/8 turn clockwise.

4.1. Recommended places to position the sensors:

- At the bottom of a riser pipe in the basement
- On the basement floor
- Under or next to a washing machine or dishwasher
- Under the sink
- Next to the toilet

The sensors can either be placed directly on the floor or mounted on the wall using the provided bracket. For wall mounting, the sensor cable needs to be plugged into the bracket, with the socket ideally pointing downwards.

5. Technical Data - flood sensor

- Platform: STM32WLE5CCU6
- Wireless Connection:
 - LoRa point-2-point
 - SF 9, coding 4/5
 - Frequency: EU868
 - Range: > 2km (TX 22 dB)
- Battery: CR123
- Protection: IP 54
- Sensor-Pad
 - Height: 7 mm
 - Connection: Audio Coaxial
 - Kabel-Length: 110 mm
 - Protection: IP 67
- Environmental Conditions
 - Shipping and Storage: -65 °C ... 125 °C
 - Operation: - 40 °C ... 85 °C
 - Humidity: 0...90 %
- Dimensions: 65 x 65 x 32 mm
- Weight (without Battery): 90 gr.

6. Technical Data

6.1. Valve Motor

- Mechanical Performance:
 - Rotation Speed: 15 rpm
 - Travel Time (full open close): 40 s
 - Mechanical Power: 10,95 W
 - Gearbox: 1 to 704 ratio



- Noise: < 50 dB
 - Vibration: < 10 dB
- Installation space:
 - Min. Space from Wall: Pipe center min 35 mm from wall
 - Min. Space vertically: 175 mm above pipe center
 - Min. Space vertically for installation: 220 mm above pipe center
 - Adapters: M17, M22, M27, M30
 - Supported Stem height (from bottom of bonnet): 58 mm – 135 mm, raising and non-raising spindles
 - Supported Stem connector: 6, 7, 8 mm square
 - Supports Pipes DN15 ... DN 32
- Controls and interfaces:
 - Tree Color LED (red, yellow, green)
 - Single button for local operation and alarm clearing
 - Jack to plug-in external water sensor pad for local loop operation
- Dimensions and Shipment:
 - Weight: 380 ... 420 gr (depends on adapters used)
 - Dimensions: 70 x (170 ... 195) mm
- Electrical data:
 - Voltage: 12 V DC
 - Typ. Power Consumption when motor is moving: ca. 400 mA
 - Typ. Power Consumption in Standby: ca. 50 mA
- Environmental Conditions and Trading
 - Shipment/Storage: -30 °C ... +70 °C
 - Operation: - 20 °C ... 60 °C
 - Outdoor Use: IP67 (to power supply coupling), Power Supply is IP20
 - UN Customs Tariff: 85011093900

6.2. Wireless Communication

- LoRa P2P (for control by Aqua-Scope sensors)
 - SF: 9, coding 4/5
 - Frequency: EU868
 - Range: > 1 km (TX 22 dB)

7. Scope of Delivery - flood sensor

- Water Sensor
- Bracket
- 1 x CR123 battery
- One external flood sensor with cable
- 1 x screw and dowels
- Manual



8. Scope of Delivery - motor

- Motor with power cable (150 cm) to waterproof coupling
- 4 * adapter rings to connect to the valve housing
- 3 different connectors for the stem
- One small Distancering and the Splitring for EWE Valve Design
- Holder plus 2 wrist bands
- Main sleeve plus internal coupler
- Two Distance rings
- External wired Flood Sensor
- External Power Supply with 150 cm cable to waterproof coupling
- Spare Hand Wheel
- Users Manual
- 57 gr Epoxy

9. Support and Contact

Should you encounter any problem, please give us the opportunity to address it before returning this product. Please check our website www.aqua-scope.com and particularly the support section for answers and help. You can also send a message to info@aqua-scope.com.

While the information in this manual has been compiled with great care, it may not be deemed an assurance of product characteristics. Aqua-Scope shall be liable only to the degree specified in the terms of sale and delivery. The reproduction and distribution of the documentation and software supplied with this product and the use of its contents is subject to written authorization from Aqua-Scope. We reserve the right to make any alterations that arise as the result of technical development.

- Phone: +372 (0) 6248002
- eMail: info@aqua-scope.com
- Web: www.aqua-scope.com

10. Declaration of Conformity



Aqua-Scope Technology OÜ, Sakala 7-2, 10141 Tallinn, Republic of Estonia, declares that this radio emitting device works on the following frequencies:

Български С настоящото Aqua-Scope Technology OÜ декларира, че този тип радиосъоръжение KFRFLO01 е в съответствие с Директива 2014/53/ЕС. Цялостният текст на ЕС декларацията за съответствие може да се намери на следния интернет адрес: www.aqua-scope.com/ce.



Čeština Tímto Aqua-Scope Technology OÜ prohlašuje, že typ rádiového zařízení KFRFLO01 je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese: www.aqua-scope.com/ce.

Dansk Hermed erklærer Aqua-Scope Technology OÜ, at radioudstyrstypen KFRFLO01 er i overensstemmelse med direktiv 2014/53/EU. EUoverensstemmelseserklæringens fulde tekst kan findes på følgende internetadresse: www.aqua-scope.com/ce.

Deutsch Hiermit erklärt Aqua-Scope Technology OÜ, dass der Funkanlagentyp KFRFLO01 der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU-Konformitätserklärung ist unter der folgenden Internetadresse verfügbar: www.aqua-scope.com/ce.

Eesti Käesolevaga deklareerib Aqua-Scope Technology OÜ, et kesolev raadioseadme tüüp KFRFLO01 vastab direktiivi 2014/53/EL nõuetele. ELi vastavusdeklaratsiooni terviklik tekst on kättesaadav järgmisel internetiaadressil: www.aqua-scope.com/ce

English Hereby, Aqua-Scope Technology OÜ declares that the radio equipment type KFRFLO01 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.aqua-scope.com/ce

Español Por la presente, Aqua-Scope Technology OÜ declara que el tipo de equipo radioeléctrico KFRFLO01 es conforme con la Directiva 2014/53/UE. El texto completo de la declaración UE de conformidad está disponible en la dirección Internet siguiente: www.aqua-scope.com/ce

Ελληνικά Με την παρούσα ο/η Aqua-Scope Technology OÜ, δηλώνει ότι ο ραδιοεξοπλισμός KFRFLO01 πληροί την οδηγία 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ διατίθεται στην ακόλουθη ιστοσελίδα στο διαδίκτυο: www.aqua-scope.com/ce

Français Le soussigné, Aqua-Scope Technology OÜ, déclare que l'équipement radioélectrique du type KFRFLO01 est conforme la directive 2014/53/UE. Le texte complet de la déclaration UE de conformité est disponible l'adresse internet suivante: www.aqua-scope.com/ce

Hrvatski Aqua-Scope Technology OÜ ovime izjavljuje da je radijska oprema tipa KFRFLO01 u skladu s Direktivom 2014/53/EU. Cjeloviti tekst EU izjave o sukladnosti dostupan je na sljedećoj internetskoj adresi: www.aqua-scope.com/ce

Italiano Il fabbricante, Aqua-Scope Technology OÜ, dichiara che il tipo di apparecchiatura radio KFRFLO01 conforme alla direttiva 2014/53/UE. Il testo completo della dichiarazione di conformità UE disponibile al seguente indirizzo Internet: www.aqua-scope.com/ce

Latviešu Ar šo Aqua-Scope Technology OÜ deklarē, ka radioiekārta KFRFLO01 atbilst Direktīvai 2014/53/ES. Pilns ES atbilstības deklarācijas teksts ir pieejams šādā interneta vietnē: www.aqua-scope.com/ce Lietuvių AŠ, Aqua-Scope Technology OÜ, patvirtinu, kad radijo įrenginių tipas KFRFLO01 atitinka Direktyvą 2014/53/ES. Visas ES atitikties deklaracijos tekstas prieinamas šiuo internet adresu: www.aqua-scope.com/ce

Magyar Aqua-Scope Technology OÜ igazolja, hogy a KFRFLO01 típus rádiberendezés megfelel a 2014/53/EU irányelvnek. Az EÜmegfelelőségi nyilatkozat teljes szövege elérhető a következő internetes címen: www.aqua-scope.com/ce

Malti B'dan, Aqua-Scope Technology OÜ, niddikjara li dan it-tip ta' tagħmir tar-radju KFRFLO01 huwa konformi mad-Direttiva 2014/53/UE. It-test kollu tad-dikjarazzjoni ta' konformit tal-UE huwa disponibbli f'dan l-indirizz tal-Internet li ġej: www.aqua-scope.com/ce

Nederlands Hierbij verklaar ik, Aqua-Scope Technology OÜ, dat het type radioapparatuur KFRFLO01 conform is met Richtlijn 2014/53/EU. De volledige tekst van de EUconformiteitsverklaring kan worden geraadpleegd op het volgende internetadres: www.aqua-scope.com/ce



Polski Aqua-Scope Technology OÜ niniejszym oświadcza, że typ urządzenia radiowego KFRFLO01 jest zgodny z dyrektywą 2014/53/UE. Pełny tekst deklaracji zgodności I UE jest dostępny pod następującym adresem internetowym: www.aqua-scope.com/ce

Português O(a) abaixo assinado(a) Aqua-Scope Technology OÜ declara que o presente tipo de equipamento de rádio KFRFLO01 está em conformidade com a Diretiva 2014/53/UE. O texto integral da declaração de conformidade está disponível no seguinte endereço de Internet: www.aqua-scope.com/ce

Română Prin prezenta Aqua-Scope Technology OÜ declară că tipul de echipamente KFRFLO01 este în conformitate cu Directiva 2014/53/UE. Textul integral al declarației UE de conformitate este disponibil la următoarea adresă internet: www.aqua-scope.com/ce

Slovensko Aqua-Scope Technology OÜ potrjuje, da je tip radijske opreme KFRFLO01 skladen z irektivo 2014/53/EU. Celotno besedilo izjave EU o skladnosti je na voljo na naslednjem spletnem naslovu: www.aqua-scope.com/ce

Slovensky Aqua-Scope Technology OÜ týmto vyhlasuje, že rádiové zariadenie typu KFRFLO01 je v slade so smernicou 2014/53/EÚ. Úplné EÚ vyhlásenie o zhode je k dispozícii na tejto internetovej adrese: www.aqua-scope.com/ce

Soumi Aqua-Scope Technology OÜ vakuuttaa, että radiolaitetyypin KFRFLO01 on direktiivin 2014/53/EU mukainen. EUvaatimustenmukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa: www.aqua-scope.com/ce

Svenska Härmed försäkrar Aqua-Scope Technology OÜ att denna typ av radioutrustning KFRFLO01 överensstämmer med direktiv 2014/53/EU. Den fullständiga texten till EUförsäkran om överensstämmelse finns på följande webbadress: www.aqua-scope.com/ce

11. Disposal Guidelines



Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging health and well-being.