

# Motor Servo for Ball Valves (LoRaP2P)

SKU: BVSLWE02

Version: 1.0.0



## Product Description

This motor converts existing and installed ball valves into intelligent water control devices. Thanks to the innovative clamp mechanism, it can be installed on shut-off valves with a pipe diameter between 0.5 and 1.5 inches within minutes, without the need for additional tools, and can be removed just as easily. A patented coupling mechanism allows for torques of up to 8 Nm, enabling it to function even with rusty and old valves. The servo motor is waterproof and can be used in damp, dirty, and outdoor environments.

In the open position, the motor automatically performs valve training once a week (closing/opening by 1/8 turn to remove dirt and scale). The device is also capable of measuring the rotation angle and detecting the end positions of the lever. It approaches the end positions slowly to avoid friction and unnecessary mechanical stress. It is powered by an external 12V power supply through a waterproof coupling.

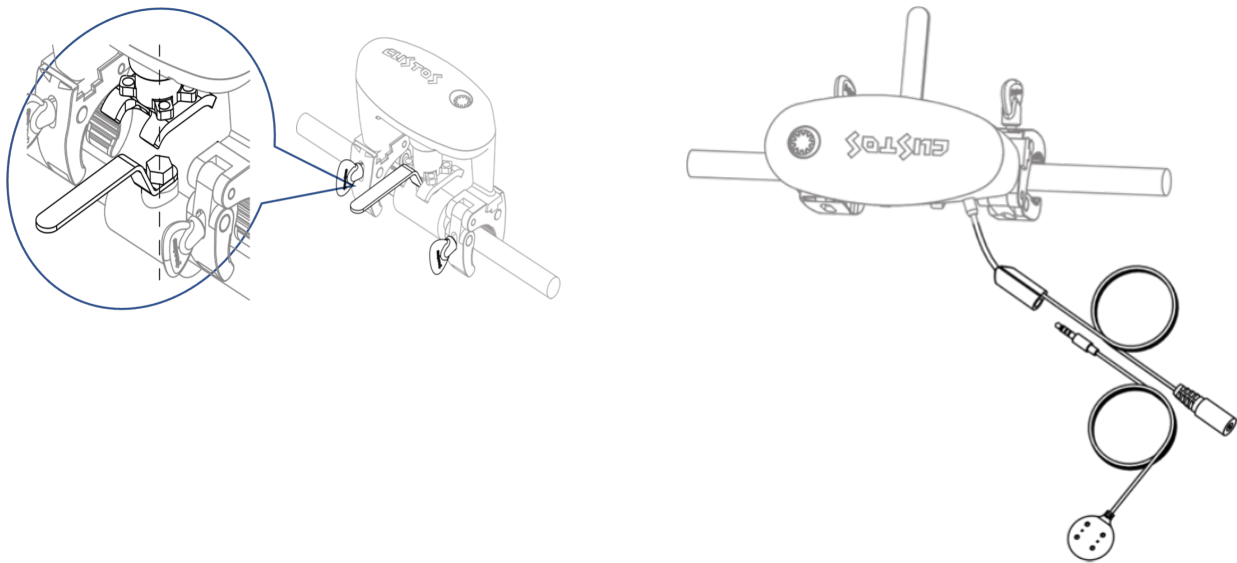


Incorporating an additional water sensor directly connected to the device enhances functionality, enabling the motor to serve as a leak protection system without the need for further configuration or wireless connectivity.

The device can be directly connected to an Aqua-Scope leak monitor and sends its information directly to the Aqua-Scope system. For controlling the device using LoRaWAN please use SKU BVSLWE01.

## Installation

1. Make sure that the device is disconnected from the power.
2. Select the correct side of the fork based on the width of the valve handle.
3. Ensure that the two clamping buttons and the handle are pointing in the opposite direction (the handle must be able to move freely).
4. Tighten the clamps with your hands while holding the BVS.
5. If necessary, remove the dust cover and connect the local water sensor.
6. Connect the DC adapter to the power cable coming from the BVS and tighten the waterproofing.
7. Plug the power adapter into a 230V outlet.



## Calibration

The device measures both the rotation angle and the end positions of the handle. This allows it to gently approach the end positions, avoiding unnecessary mechanical stress. Each time the device is powered on, it performs a calibration run. To start the calibration, simply press the button once. You will observe some movements of the handle, and after 10 to 20 seconds, the device is ready for operation.

Calibration requires the BVS to be mounted on a ball valve. The device detects if no valve is present and cancels the calibration. In this case, operation of the handle



(both by button and remote command) is disabled.

## External Water Sensor

The device allows the attachment of an optional wired water sensor. There is a corresponding socket on the power cable next to the motor. Remove the blue protective pad and insert the sensor. Please press the plug with some force to ensure a waterproof connection. If the sensor head detects water, a flood alarm sounds, and the LED flashes red.

Once the sensor head is free of water, you can clear the alarm by pressing the button for 2 seconds. It is also possible to clear the alarm with a wireless LORA command.

## Manual Operation of the Motor

The device has a single button with a built-in tricolor LED. To switch the valve, you can click the button or hold the button down for a few seconds. The BVS helps you count the seconds by beeping every second. The device is designed for outdoor use and must prevent malfunctions due to water droplets on the button. Therefore, please press the button firmly (not too shyly), even if you only click briefly, so that the touchless button recognizes your finger.

Pressing the button for 2 seconds (2 \* beeping) clears an alarm.

## Connecting to the LoRaWAN Network

Please register the device with its three keys on your LoRaWAN server before putting it into operation. The device EUI is printed on the device. Enter this key and your registered email address at <https://aqua-scope.com/lora> to obtain the missing keys. The email address is the account email from Aqua-Scope Shop purchases, or the data is provided by your point of sale.

## LEDs

The device has a tricolor LED with the following meanings:

- Green slow blinking: Valve is open (can be turned off via parameter 6)
- Red slow blinking: Valve is closed (can be turned off via parameter 6)
- Red/Green blinking: Motor is moving
- Red blinking or solid red: Alarm
- Red triple blinking: Motor is blocked
- Yellow blinking: Connecting to Aqua-Scope Monitor

## Scope of Delivery



- Motor with power cable
- 1 \* wired flood sensor pad
- 12 V Power Supply

## Technische Daten

- Modell-Nummer: BVSLWE01 (EU)
- Abmessungen 14.8 x 9.6 x 13.3mm
- Gewicht des Hauptgerätes: 603g
- Gerätefarbe: Weiss
- Max. Drehmoment an der Kopplungsgabel: 7 Nm
- LoRa
  - LoRa Modul: SX 1261
  - Frequenz EU: 868.42 & 869.85MHz
  - LoRa-Protokoll: P2P mit SF9
- Zubehör und Schnittstellen
  - Water Leak Sensor Local Water Leak Sensor Probe
  - Temperatursensor: MCP9700x eingebaut, Messbereich -40°C to +125°C / (-40°F to +257°F)
  - Taste: ein wassergeschützter Touchbutton
  - Indikator: Dreifarben - LED. (Grün, Gelb, Rot)
  - Eingebauter Buzzer: (Max. 85dB)
- Stromversorgung
  - Eingangsspannung AC-DC: AC (110V 60Hz / 220V 50Hz); DC (12V / 1A)
  - Stromverbrauch Standby: ~10mA @ 12VDC = 0.12W
  - Stromverbrauch bei Motorbewegung: Max. ~700mA @ 12VDC = 8.4W
- Umweltbedingungen
  - Versand/Lagerung: -30 °C ... +70 °C
  - Betrieb: - 20 °C ... 60 °C
  - Schutzgrad: IP66 bis zum Netzteil, Netzteil selbst ist IP20
  - UN Zolltarifnummer: 85011093900

## 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](http://www.aqua-scope.com) and particularly the support section for answers and help. You can also send a message to [info@aqua-scope.com](mailto:info@aqua-scope.com).

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## 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 BVSLWE02 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](http://www.aqua-scope.com/ce).

**Čeština** Tímto Aqua-Scope Technology OÜ prohlašuje, že typ rádiového zařízení BVSLWE02 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](http://www.aqua-scope.com/ce).

**Dansk** Hermed erklærer Aqua-Scope Technology OÜ, at radioudstyrstypen BVSLWE02 er i overensstemmelse med direktiv 2014/53/EU. EUoverensstemmelseserklæringens fulde tekst kan findes på følgende internetadresse: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce).

**Deutsch** Hiermit erklärt Aqua-Scope Technology OÜ, dass der Funkanlagentyp BVSLWE02 der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU-Konformitätserklärung ist unter der folgenden Internetadresse verfügbar: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce).

**Eesti** Käesolevaga deklareerib Aqua-Scope Technology OÜ, et kesolev raadioseadme tüüp BVSLWE02 vastab direktiivi 2014/53/EL nõuetele. ELi vastavusdeklaratsiooni tselik tekst on kttesaadav jrgmisel internetiaadressil: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce)

**English** Hereby, Aqua-Scope Technology OÜ declares that the radio equipment type BVSLWE02 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](http://www.aqua-scope.com/ce)

**Español** Por la presente, Aqua-Scope Technology OÜ declara que el tipo de equipo radioeléctrico BVSLWE02 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](http://www.aqua-scope.com/ce)

**Ελληνικά** Με την παρούσα ο/η Aqua-Scope Technology OÜ, δηλώνει ότι ο ραδιοεξοπλισμός BVSLWE02 πληροί την οδηγία 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ διατίθεται στην ακόλουθη ιστοσελίδα στο διαδίκτυο: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce)

**Français** Le soussigné, Aqua-Scope Technology OÜ, déclare que l'équipement radioélectrique du type BVSLWE02 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](http://www.aqua-scope.com/ce)

**Hrvatski** Aqua-Scope Technology OÜ ovime izjavljuje da je radijska oprema tipa BVSLWE02 u skladu s Direktivom 2014/53/EU. Cjeloviti tekst EU izjave o sukladnosti dostupan je na sljedećoj internetskoj adresi: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce)



**Italiano** Il fabbricante, Aqua-Scope Technology OÜ, dichiara che il tipo di apparecchiatura radio BVSLWE02 conforme alla direttiva 2014/53/UE. Il testo completo della dichiarazione di conformità UE disponibile al seguente indirizzo Internet: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce)

**Latviešu** Ar šo Aqua-Scope Technology OÜ deklarē, ka radioiekārta BVSLWE02 atbilst Direktīvai 2014/53/ES. Pilns ES atbilstības deklarācijas teksts ir pieejams šādā interneta vietnē: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce) Lietuvių Aš, Aqua-Scope Technology OÜ, patvirtinu, kad radijo įrenginių tipas BVSLWE02 atitinka Direktyvą 2014/53/ES. Visas ES atitikties deklaracijos tekstas prieinamas šiuo internet adresu: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce)

**Magyar** Aqua-Scope Technology OÜ igazolja, hogy a BVSLWE02 típus rádiberendezés megfelel a 2014/53/EU irányelvnek. Az EUmegfelelőségi nyilatkozat teljes szövege elérhető a következő internetes címen: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce)

**Malti** B'dan, Aqua-Scope Technology OÜ, niddikjara li dan it-tip ta' tagħmir tar-radju BVSLWE02 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](http://www.aqua-scope.com/ce)

**Nederlands** Hierbij verklaar ik, Aqua-Scope Technology OÜ, dat het type radioapparatuur BVSLWE02 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](http://www.aqua-scope.com/ce)

**Polski** Aqua-Scope Technology OÜ niniejszym oświadcza, że typ urządzenia radiowego BVSLWE02 jest zgodny z dyrektywą 2014/53/UE. Pełny tekst deklaracji zgodność I UE jest dostępny pod następującym adresem internetowym: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce)

**Português** O(a) abaixo assinado(a) Aqua-Scope Technology OÜ declara que o presente tipo de equipamento de rádio BVSLWE02 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](http://www.aqua-scope.com/ce)

**Română** Prin prezenta Aqua-Scope Technology OÜ declară că tipul de echipamente BVSLWE02 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](http://www.aqua-scope.com/ce)

**Slovensko** Aqua-Scope Technology OÜ potrjuje, da je tip radijske opreme BVSLWE02 skladen z irektivno 2014/53/EU. Celotno besedilo izjave EU o skladnosti je na voljo na naslednjem spletnem naslovu: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce)

**Slovensky** Aqua-Scope Technology OÜ týmto vyhlasuje, že rádiové zariadenie typu BVSLWE02 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](http://www.aqua-scope.com/ce)

**Soumi** Aqua-Scope Technology OÜ vakuuttaa, että radiolaitetyyppi BVSLWE02 on direktiivin 2014/53/EU mukainen. EUvaatimustenmukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce)

**Svenska** Härmed försäkrar Aqua-Scope Technology OÜ att denna typ av radioutrustning BVSLWE02 verensstämmer med direktiv 2014/53/EU. Den fullständiga texten till EUförsäkran om verensstämmelse finns på följande webbadress: [www.aqua-scope.com/ce](http://www.aqua-scope.com/ce)

## 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



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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.