CPS®

COMPUTE-A-CHARGE®

SVW

Wireless Solenoid Valve

Charge, Recover & Evacuate With Precision

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CPS Link™

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Version 4.3 or higher

OWNER'S MANUAL (English)

TO BE OPERATED BY QUALIFIED PERSONNEL ONLY

Patented CPS® Link™ Wireless Technology

Patent #9,043,161

Bluetooth® FC CE IC ICES-003

1.888.610.7664 www.calcert.com sales@calcert.com

CONTENTS

GENERAL SAFETY INSTRUCTIONS

Please read, follow and understand the contents of this entire manual, with special attention given to Danger, Warning and Caution statements.

FOR USE BY PROFESSIONALLY TRAINED AND CERTIFIED OPERATORS ONLY. MOST STATES, COUNTRIES, ETC., MAY REQUIRE USER TO BE LICENSED. PLEASE CHECK WITH YOUR LOCAL GOVERNMENT AGENCY.

DANGER: Overfilling a recovery tank may cause a violent rupture resulting in severe injury or even death. **As a minimum, please use a scale to continuously monitor recovery tank weight.**

WARNING: All hoses may contain liquid refrigerant under pressure. Contact with refrigerant may cause frostbite or other related injuries. Wear proper personal protective equipment such as safety goggles and gloves. When disconnecting any hose, please use extreme caution as high pressure refrigerant may be present.

WARNING: Avoid breathing refrigerant vapors and lubricant vapor or mist. Breathing high concentration levels may cause heart arrhythmia, loss of consciousness, or even cause suffocation. Exposure may irritate eyes, nose, throat and skin. Please read manufacturer's Material Safety Data Sheet for further safety information on refrigerants and lubricants.

WARNING: Make certain all safety devices are functioning properly before operating equipment.

CAUTION: To avoid cross contamination of refrigerant and potential leakage to the atmosphere, proper hoses and fittings should be used and checked for damage.

CAUTION: To avoid overfilling refrigerant tank, read and follow manufacturer's recommended filling instructions for refrigerant being recovered and constantly monitor the scale display.

CAUTION: Mixing of different refrigerants will cause your recovered supply of refrigerant to become contaminated.

CAUTION: Read and follow manufacturer's instructions when using equipment referenced in this manual.

GENERAL SAFETY INSTRUCTIONS

CAUTION: During refrigerant charging and recovery, the user must monitor the weight shown on the scale and/or mobile device display and turn ON/OFF manifold and/or tank valves at appropriate times so that the proper amount of refrigerant is recovered (into the tank) or removed (from the tank)

SVW OVERVIEW

The SVW is a compact, battery operated Wireless Solenoid Valve with "IN" and "OUT" 1/4″ SAE male ports designed to quickly open or close, thereby precisely metering a gas or liquid flowing through connected hoses. The **SVW** can be used for **MANUAL Charging**, **Recovery** or **Evacuation** procedures. It may also be used for **AUTOMATIC Charging** and **Recovery** when paired to a mobile device running the CPS Link app.

MANUAL CHARGING, RECOVERY OR EVACUATION (SVW + Any Brand Of HVAC/R Service Equipment)
After inserting the 9V battery and powering the SVW up, the solenoid valve can be "manually" opened or closed by pressing the ⏻ button on top of the SVW housing. Each press of the button will cycle the solenoid to open or close, thereby operating in the same way a ball valve would on a system.

AUTOMATIC CHARGING OR RECOVERY

SVW + CPS CC220EW Scale
If the SVW is paired to the CC220EW wireless scale, a charge or recovery weight entered into this scale's keypad (memory) will be precisely controlled by the SVW.

SVW + CPS CC220EW Scale* + CPS Link App
If the SVW is paired to the CC220EW wireless scale, and both are then paired to a mobile device running the CPS Link™ app, a charge or recovery weight entered into the mobile device will be precisely controlled by the SVW.

SVW KEY FEATURES

- Ensures fast, precise control of refrigerant during service routines
- Saves time, reduces cost and extends service equipment life
- Compatible with all common CFC, HFC, HCFC refrigerants and blends
- Operates with CPS Link™ app

ADDITIONAL FEATURES IF SVW PAIRED TO A MOBILE DEVICE (Running CPS Link™ App)

- **Pair with other wireless devices** - To automate Charging, Recovery & Evacuation
- **Key controlling functions and readouts** - Conveniently located on your mobile device
- **Store Job Data** - Work order, invoice number, customer, log of refrigerant use.
- **Create And Store Customer Data** - Name, address, e-mail, phone, notes.
- **Test Logs** - Measurements, results of tests associated with services performed.
- **Export** - e-mail specific files to customer or home office.
- **Tank Tracker™** - Convenient refrigerant tank management system for tracking refrigerant used on jobsites (for Supply & Recovery tanks and refrigerant type in each tank), plus time, date and geotag location where used.
- **Operates in ISM band** - For international use.

SVW LAYOUT

SVW SPECIFICATIONS

Control By Corded Scale	Use with CC220EW (With LCD display)
Or control By Mobile Device & CPS Link App	Use with CC220EW, or CC220W, or CC240W
Turn ON	Press ON/OFF button (2 secs) until LED turns green. Release button to operate.
Turn OFF	Press and hold ON/OFF button (5 secs) until LED turns OFF. Release button.
Cycle Solenoid ON/OFF (While SVW ON)	Press and release (pulse) the button.
Auto Power Off (ENABLED)	SVW turns OFF after set period of inactivity (default: 10 mins)
Auto Power Off (DISABLED)	Disable via APP
Charge/Recover Alarms	In CC220EW control and mobile device
Transmission Range (Line Of Sight)	Up to 150 feet
Frequency Range	2400 to 2480 MHz
Power Source	9V Alkaline (Included)
Continuous Battery Life	Up to 500 hours
Battery Status Indicator	On hand held corded display, or mobile device
Width x Length x Height, Weight (+ Soft Case, Battery)	2.7" x 4.5″ x 3″ (70 x 83 x 76 mm), 11.5 Oz (0.32 kg)
Maximum Working Pressure	500 Psig (34.5 Bar)
Maximum Operating Differential	485 Psig (33.5 Bar)
Operating Temperature	14F to 122F (-10C to 50C)
Operating Humidity	0% to 95% (Non-condensing)
IN/OUT Fittings	Brass, 1/4″ SAE male
Refrigerant Compatibility	All common CFC, HFC, HCFC refrigerants and blends*
Approvals	FCC, CE, IC, ICES-003
Warranty	1 Year

**Nitrogen and CO2 must be regulated. Not for use with Ammonia refrigerant.*

SVW QUICK START INSTRUCTIONS

1. Remove Battery Cover from SVW housing and insert the included 9V battery (ensure correct polarity). Replace battery cover.
2. For HVAC/R use, connect the SVW per Diagram A, B, or C.
3. Press and hold the Power button for about 2 seconds until the GREEN LED flashes.
4. **MANUAL OPERATION** - The SVW can now be operated "manually" by pressing the Power button to cycle the solenoid OPEN or CLOSED, OR;
5. **AUTOMATIC OPERATION** - The SVW can be operated "automatically" (see instructions starting page 10).
6. **For all procedures, reference manufacturer's instructions for using required equipment**.

DIAGRAM A (CHARGE)

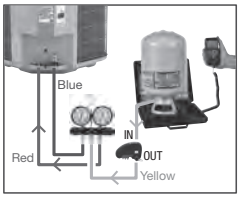


DIAGRAM B (RECOVER)

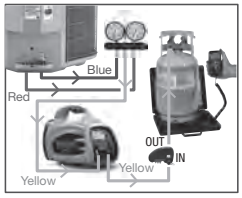
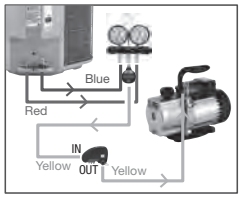


DIAGRAM C (EVACUATE)



CC220EW SCALE QUICK START INSTRUCTIONS

1. **For charge or recovery procedures, reference manufacturer's instructions for using required equipment**.
2. Remove scale from storage case and place on level, rigid surface.
3. Install one or two (included) 9V batteries in back of control.
4. Press to turn scale ON.

CC220EW SCALE QUICK START INSTRUCTIONS (Cont'd)

5. **APO (Automatic Power Off)**. 5 minutes = default setting [you may also select 10, 15, 30, 60 mins, or turn APO OFF]. Press SET/RESET until APO appears on display. Then use ▲▼ until desired APO time is found. Then press GO/HOLD to select desired time.
6. **DISPLAY RESOLUTION**: Default setting is 0.2 Oz (5g).
   a. To select a different resolution, press SET/RESET until "rES" appears on display.
   b. Press ▲▼ arrows until new desired value found (Oz: .1, .2, .25, .50; or Grams: 2, 5, 10, 25)
   c. Press SET/RESET to enter your selected value.
7. **WEIGHT UNITS**: To select Imperial (Lb & Oz) or Metric (Kg & G) units, press the LB/KG key to toggle to your desired value.
8. You are now ready to Weigh, Charge or Recover.

ABBREVIATIONS ON CC220EW SCALE DISPLAY

Selectable Modes	**SCL=** Scale (Weigh)	**CHG =** Charge	**rEC =** Recover	**rES =** Resolution	**APO =** Automatic Power OFF	**SOL =** Solenoid (SVW)
Charge Mode	**c =** Charge (tracking) in process	**F =** Final programmed charge achieved				
Recover Mode	**t OFF:** Ensure tank NOT on scale	**t ON:** Place tank ON scale	**r =** Recovery (tracking) in process	**o =** Tank overfilled	**n =** Net gain of one or more tanks	
Charge or Recover	**h =** Hold (pause) refrigerant tracking				**Err =** Scale Malfunction	
All Modes	**OL=** Overload (Reduce load immediately)					**SV =** SVW wireless connection to CC220EW Scale

AUTOMATIC CHARGE

The SVW is excellent for charging precise amounts of refrigerant.

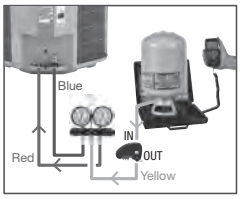
1. For initial set-up of the SVW and CC220EW, follow the QUICK START Instructions on pages 8-9.

2. Activate the SVW first, then the CC220EW.

3. "SV" will appear in upper right corner of CC220EW display if Scale and SVW have made wireless connection.

- **a.** If the SVW does not connect to the CC220EW:
- **b.** Press SET/RESET on the CC220EW control 6 times until "SOL" appears on the display.
- **c.** Press GO/HOLD.
- **d.** The CC220EW will scan for an SVW that is powered on. If none found, "nOnE" will appear.
- **e.** If an SVW device is located, its ID# will appear on the scale display, then press SET/RESET.
- **f.** After a few seconds, "SV" should appear in the upper right of the CC220EW display.

DIAGRAM A (CHARGE)



4. Place refrigerant tank on scale

5. Connect equipment per **DIAGRAM A**.

6. Press SET/RESET to scroll through the menu and choose CHARGE "CHG".

7. Use ▲ ▼ to input desired weight (charge amount), then press GO/HOLD. **(Figure C-4)**

8. Open tank and manifold valves, then press and quickly release the SVW ⏻ button. The charge (tracking) session will begin. The display will show a small "c"indicating "charge" and how much refrigerant has been charged into your system (removed from the refrigerant tank).

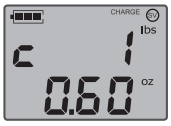


Fig. C-4
(Example Weight Shown)

AUTOMATIC CHARGE (Cont'd)

9. During charging, screen characters will eventually flash at an increasing rate, showing that the programmed charge amount is closer to being reached.

- **HOLD** - Pressing GO/HOLD while charging will PAUSE charge, and the tracked amount, allowing the user to tighten hoses, change tanks if necessary, but continue later without losing track of the NET amount charged.
- **SET/RESET** - Pressing SET/RESET during charge operation will stop/cancel the charge. The normal WEIGH Mode will resume.
- **GO/HOLD** - After any adjustments are made, charging and the accumulated amount being tracked can be resumed by pressing GO/HOLD.

10. **When programmed charge amount (weight) has been reached, the screen will flash a large "F" (FINAL) (Figure C-7) and the control will "beep".**

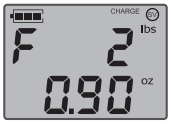


Fig. C-7
(Example Weight Shown)

11. Press SET/RESET to end session.

12. SHUT DOWN - When CHARGE function done, Press and hold SVW ⏻ button until GREEN light turns OFF, close valves, remove cylinder from platform. Press ⏻ to turn scale OFF.

AUTOMATIC RECOVERY

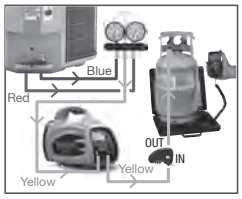
The SVW is excellent for recovering a specified amount of refrigerant and helps prevent overfilling recovery tanks.

1. For initial set-up of the SVW and CC220EW, follow the QUICK START Instructions on pages 8-9.

2. Activate the SVW first, then the CC220EW.

3. "SV" will appear in upper right corner of CC220EW display if scale and SVW have made wireless connection.
   - **a.** If the SVW does not connect to the CC220EW:
   - **b.** Press SET/RESET on the CC220EW control 6 times until "SOL" appears on the display.
   - **c.** Press GO/HOLD.
   - **d.** The CC220EW will scan for an SVW that powered on. If none found, "nOnE" will appear.
   - **e.** If an SVW device is located, its ID# will appear on the scale display, then press SET/RESET.
   - **f.** After a few seconds, "SV" should appear in the upper right of the CC220EW display.

DIAGRAM B (RECOVER)



4. Connect equipment per **DIAGRAM B (RECOVER)** but **DO NOT PLACE TANK ON SCALE AT THIS TIME**

5. Press SET/RESET to scroll through menu and choose Recover "rEC".

6. For tank you will use, press ▲ ▼ to input a combined Tank Weight & Water Capacity Weight both stamped individually on the tank collar (but use TW + 0.8 X WC for final value to enter), then press GO/HOLD.
   - WC = Water Capacity (weight);
   - TW = Tank Weight (of empty tank)

Fig. R-6

7. **TANK OFF**
   When "t OFF" appears **(Figure R-6)** ensure tank is **NOT** on scale, press GO/HOLD.

CAUTION: DO NOT PLACE TANK ON PLATFORM BEFORE STEP 8. DOING SO COULD LEAD TO OVER-FILLING THE REFRIGERANT TANK. DANGER - THE RECOVERY TANK CONTAINS LIQUID REFRIGERANT. OVERFILLING OF THE RECOVERY TANK MAY CAUSE A VIOLENT EXPLOSION RESULTING IN SEVERE INJURY OR EVEN DEATH.

8. **TANK ON**
   When "t ON" **(Figure R-7)** appears, place tank on scale, press GO/HOLD, open valves. Turn ON Recovery Machine (follow manufacturer's instructions), and quickly press and release the SVW On/Off button to start recovery.

Fig. R-7

9. **REMAINING CAPACITY OF TANK**
   Display will show "r" **(Figure R-8)** indicating recovery in process, alongside the remaining tank refrigerant weight capacity (until full). Display will count backwards from remaining tank capacity **CAUTION: OVERFILLING RECOVERY TANK MAY RESULT IN SERIOUS INJURY**.

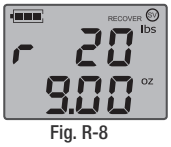


Fig. R-8
(Example Weight Shown)

10. **TANK FILL LIMIT REACHED (OR EXCEEDED)**
    While recovering refrigerant, be ready to turn OFF recovery machine and/or CLOSE valves, while constantly monitoring the display so that the tank will NOT be overfilled. Characters will flash if tank overfill has ocurred and a "negative" symbol will appear next to the "o" symbol, **(Figure R-9)** indicating the tank has been overfilled by the amount indicated on the display.

    10.1 If characters flash, the user may press GO/HOLD once to stop the flashing. Turn OFF recovery machine and/or CLOSE valves. The user may change tanks, then press GO/HOLD again to restart recovery tracking.

Fig. R-9
(Example Weight Shown)

11. **HOLD FUNCTION**
    At any point during recovery, pressing GO/HOLD will activate the HOLD function. During HOLD indicated by "h" **(Figure R-10)**, the remaining tank capacity will update if the weight is changed, but the net gain will not account for any additional recovery during hold. ***NOTE: Remember to physically stop recovering refrigerant by pressing the SVW On/Off button while activating HOLD.***

Fig. R-10
(Example Weight Shown)

AUTOMATIC RECOVERY (Cont'd)

12. NET GAIN

At any point during refrigerant recovery, pressing and holding ▲ will show the net gain indicated by "n" **(Figure R-11)** The recovery feature will track the net gain during the recovery session (except during Hold), including even after overfill is reached, so that the exact total net gain will be known.

Fig. R-11
(Example Weight Shown)

13. IF RECOVERING REFRIGERANT INTO MORE THAN ONE TANK

If recovering refrigerant into more than one tank, of the same capacity, without reaching overfill, press the SVW ⏻ button once to close the solenoid valve and GO HOLD during recovery, turn off recovery machine and close valves. Then change the tank, then press the SVW ⏻ button and GO HOLD again to restart recovery tracking.

13.1 The NET Gain will continue to track the recovery of this session, until SET RESET is pressed.

14. SHUT DOWN

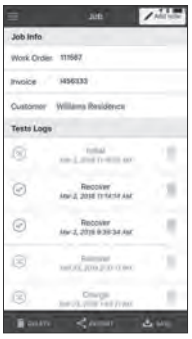
When RECOVER function complete, press the SVW ⏻ button, close valves, turn OFF recovery machine (follow manufacturer's instructions) and remove tank from scale then press SET RESET to end session or press ⏻ until display turns off. Press and hold SVW ⏻ button until GREEN LED turns OFF.

AUTOMATIC OPERATION (Using the CPS Link™ App)

Using the CPS Link™ app to pair the SVW to the CC220EW provides additional convenient features such as items 1-4 below.

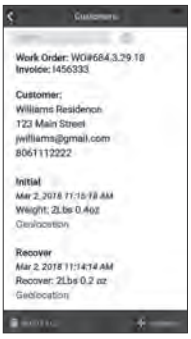
The SVW can also be used with a CPS (or other brand) of Vacuum Pump for the same additional job site functions:

1. **Customer Contact Information**- Name, address, phone, etc.
2. **Job Data** - Work order, invoice number, customer, test logs.
3. **Tank Tracker**™ (Refrigerant Tank Management System)
   a. Track your tank inventory, how much refrigerant was used plus where and when.
   b. Record Keeping - Maintain refrigerant usage/disposal records to comply with EPA Clean Air Act.
4. **E-mail** - Select files can be sent to clients, home office, etc.



Job data

List of customers



Export files to others

APP SCREENS (Using the CPS Link™ App)

Home Screen

The Home screen (below) appears if the CPS Link™ app is paired to a scale you selected from the device list (page 18).

Performance Screen (shown)

Menu Screen

I.D #
for CPS connected scale

SVW battery level
(% remaining)

Settings Screen
Language, Units, Geographic Tagging, Refrigerants, Alarms, Resolution

Job Info
(or to access previous Test logs)

Performance Screen Format
Full screen vs. reduced screen

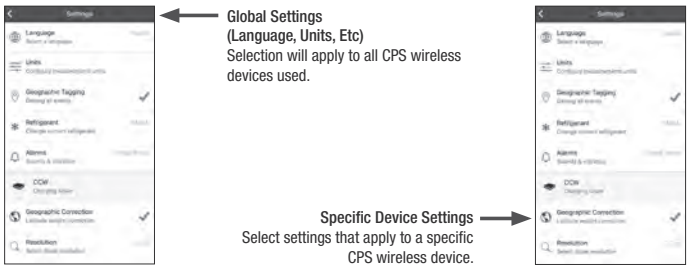
Device List
Search for and activate other CPS wireless devices

Snapshot
To save a screen shot of current readings to your job report

Mode
Cancel

Tools
To access My Customers, My Jobs, Tank Tracker

Settings Screens

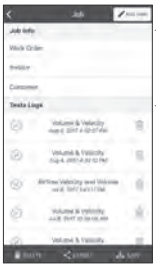


Global Settings (Language, Units, Etc)
Selection will apply to all CPS wireless devices used.

Specific Device Settings
Select settings that apply to a specific CPS wireless device.

SCREEN LAYOUTS (Using the CPS Link™ App)

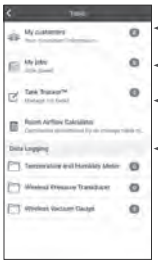
Job Info & Test Log Screen



Job Info - Input or access work orders, invoices, customers.

Tests Log - Access results and data from previously completed jobs.

Tools Screen



My Customers - Add or change customer information.

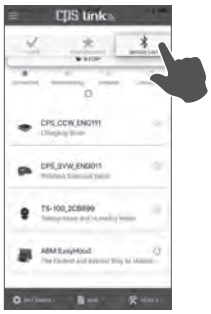
My Jobs - Access information from previous jobs.

Tank Tracker - Manage data related to your inventory of refrigerant tanks.

Data Logging - Access data logged by other CPS wireless products.

QUICK START FOR AUTOMATIC CHARGE OR RECOVERY

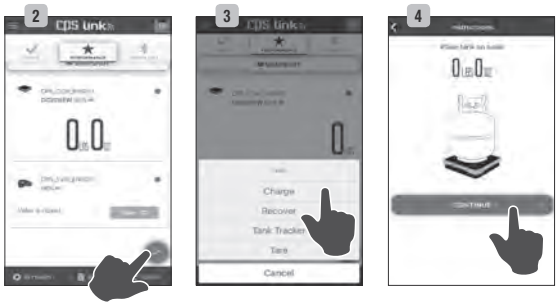
1. **Follow SVW & CC220EW QUICK START, Set Up Instructions (pg 8-9).**
2. From the App Store or Google Play, download the CPS Link app on your mobile device.
3. Turn ON an SVW and a CPS Wireless Scale.
4. **Select** an **SVW** and a **CPS Wireless Scale** from the **Device List**.



AUTOMATIC CHARGE

Follow on-screen instructions

1 Follow QUICK START Instructions on page 17.



Final tank weight (once CHARGE completed)

Exit app when done

Note:

1. *Not all screens in the CHARGE sequence are shown above.*

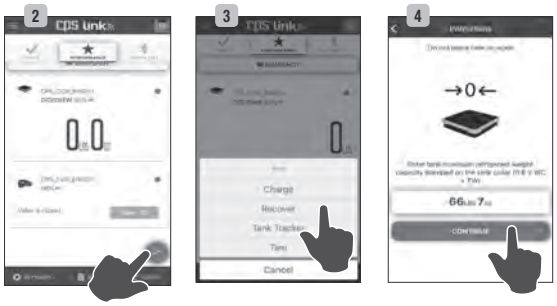
2. *This operation can also be performed using the scale with corded control/ display.*

3. *If mobile device loses connection with CC220EW, charge numerical information can still be viewed on the scale's control.*

AUTOMATIC RECOVERY

Follow on-screen instructions

1 Follow QUICK START Instructions on page 17.



RECOVER in process

Exit app when done

Note:

1. *Not all screens in the RECOVERY sequence are shown above.*

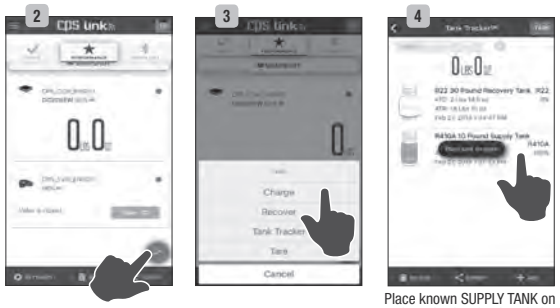
2. *This operation can also be performed using the scale with corded control/ display.*

3. *If mobile device loses connection with CC220EW, recover numerical information can still be viewed on the scale's control.*

AUTOMATIC CHARGE (Using Tank Tracker)

Follow on-screen instructions

1 Follow QUICK START Instructions on page 17.



Note:

1. *Not all screens in the CHARGE sequence are shown above.*

2. *This operation can also be performed using the scale with corded control/ display.*

3. *If mobile device loses connection with CC220EW, charge numerical information can still be viewed on the scale's control.*

AUTOMATIC RECOVERY (Using Tank Tracker)

Follow on-screen instructions

1 Follow QUICK START Instructions on page 17.

Note:

1. *Not all screens in the RECOVERY sequence are shown above.*

2. *This operation can also be performed using the scale with corded control/ display.*

3. *If mobile device loses connection with CC220EW, recover numerical information can still be viewed on the scale's control.*

APPENDIX A (SVW Battery)

SVW Battery Level:
When the SVW and mobile device wirelessly connect, the SVW's battery usage is displayed as as a "% voltage remaining" graphic on the mobile device.

When To Replace 9V Batteries:
CPS recommends installing new 9V batteries if the battery reading falls below 7%, although useful operation can be obtained with battery voltages as low as 3%.

Low Battery Indication:
When a low battery condition exists, the SVW will close the solenoid and then turn itself off in a a safe condition.

SVW/Mobile Device Connection:
If the SVW has difficulty maintaining connectivity, no response to entries, etc., the most probable cause is a low battery, or your mobile device may be more than 150 ft. (46 m) [direct line of sight] from the SVW.

WARRANTY

CPS Products, Inc. guarantees that all products are free of manufacturing and material defects to the original owner for one year from the date of purchase. If the equipment should fail during the guarantee period it will be repaired or replaced (at our option) at no charge. This guarantee does not apply to equipment that has been altered, misused or solely in need of field service maintenance. All repaired equipment will carry an independent 90 day warranty. This repair policy does not include equipment that is determined to be beyond economical repair.