EBK1
EBK2
Echo Base Kit
Package, 1 Barn
(1=US, 2=Global)

Instruction Manual

Echo Barn Kit

Echo Base Kit Package, 1 Barn

Models: EBK1 • EBK2

Munters

EBK1/EBK2 Echo Barn Kit
Instructions for Use and Maintenance

Thank You:
Thank you for purchasing a Munters EBK1/EBK2 Echo Barn Kit. Munters equipment is designed to be the highest performing, highest quality equipment you can buy. With the proper installation and maintenance it will provide many years of service.

Please Note:
To achieve maximum performance and insure long life from your Munters product it is essential that it be installed and maintained properly. Please read all instructions carefully before beginning installation.

Warranty:
For Warranty claims information see the "Warranty Claims and Return Policy" form QM1021 available from the Munters Corporation office at 1-800-227-2376 or by e-mail at aghort.info@munters.com.

Conditions and Limitations:
- Products and Systems involved in a warranty claim under the "Warranty Claims and Return Policy" shall have been properly installed, maintained and operated under competent supervision, according to the instructions provided by Munters Corporation.
- Malfunction or failure resulting from misuse, abuse, negligence, alteration, accident or lack of proper installation or maintenance shall not be considered a defect under the Warranty.

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Unpacking the Equipment

1.

Before beginning installation, check the overall condition of the equipment. Remove packing materials, and examine all components for signs of shipping damage. Any shipping damage is the customer's responsibility and should be reported immediately to your freight carrier.

1.1 Parts List

Each EBK1/EBK2 is shipped with:

EPW100: Echo 24VDC Power Distribution Kit:

1 – ECHO-24VDC-SPLY
1 – EA1002
3 – FC3496
1 – HP1473

EPS100: Echo Water Consumption Kit:

1 – ECHO-EPS

ETH100: Echo Temperature/Humidity Sensor Kit:

1 – ECHO-ETH
1 – HP1472

EBS100: Echo Automatic Bird Scale Kit:

1 – ECHO-EBS
1 – EB2110

ECHO-24VDC-SPLY

EA1002

FC3496

ECHO-EPS

ECHO-ETH

ECHO-EBS


EB2110

HP1473 – Hardware Package for EPW100

ID	Qty.	Cat. No.	Description
[A]	6	FC1208	5-Pole Terminal Block
[B]	12	WC3208M	Watertight Fitting w/ Nut, .11"-.25"D Cable, NY
[C]	12	KS1402	#9 x 1.5" Hex, Seal Washer Polebarn Screw, BLK

HP1474 – Hardware Package for EAP100/105

ID	Qty.	Cat. No.	Description
[B]	1	WC3208M	Watertight Fitting w/ Nut, NY
[C]	4	KS1402	#9 x 1.5" Hex, Seal Washer Polebarn Screw, BLK
[D]	1	WC3220EC	Watertight Fitting w/ Nut, .21"-.33"D E-Net, NY
[E]	1	KE2460	Ethernet Cable,3'L.,RJ45 CAT6, GRAY or BLK

HP1475 – Hardware Package for FC4303

ID	Qty.	Cat. No.	Description
[C]	4	KS1402	#9 x 1.5" Hex, Seal Washer Polebarn Screw, BLK
[D]	1	WC3220EC	Watertight Fitting w/ Nut, .21"-.33"D E-Net, NY
[F]	2	KS1153	¼"-20 x ½" SRTD Hex Flange Bolt, ZP
[G]	2	KN0730	¼"-20 Serrated Hex Flange Nut, ZP
[H]	3	KE1106	14.1" 50 LB, UV Resistant Wire Tie, Black NY

HP1472 – Hardware Package for ETH100

ID	Qty.	Cat. No.	Description
[J]	1	AC1015	⅛" x 150"L. Lift Line, Braided Polyester, WHT
[K]	2	AC0211 & AC0212	Azuma Bolt & Nut, Blue PL
[L]	1	KS2601	6 GA x 1.875"L. Open Eye Lag Screw, ZP

HP1475 – Hardware Package for EB2110

ID	Qty.	Cat. No.	Description
[C]	4	KS1402	#9 x 1.5" Hex, Seal Washer Polebarn Screw, BLK
[M]	1	KS1073	¾"-10 x 1.75" Hex Bolt, SS
[N]	1	KW3513	¾" Splitlock Washer, SS
[P]	2	KW3029	¾" ID x 1.75"OD Flat Washer, SS
[R]	2	KX1139	⅜"-16 x ¾" Star Knob, SS & PL
[S]	1	KS2767	½"-13 x 6.75" Hook Type Bolt w/ Nut, ZP
[T]	1	KX1092	⅜" x 3.94" Spring Snap Hook, ZP
[U]	1	AC1385	2"Dia. Hitching Ring w/ Bracket, ZP

[A]

[B]

[C]

[D]

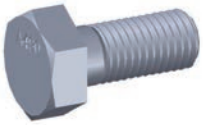
[F]

[G]

[K]

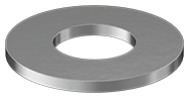
[L]

[M]



[N]

[P]



[R]

[S]

[T]

[U]

1.2 Tools Required by Installer (not provided)

Tools/Supplies	Echo Kit
Rotary Hammer Drill	ELK100
Concrete Drill Bit – Diameter ½"	ELK100
3 lb sledge – for concrete anchor	ELK100
⅞" Diameter Socket	ELK100
1½" Open End Wrench	ELK100
7/16" Diameter Socket	ELK100
7/16" Open End Wrench	ELK100
½" Drill Bit - Titanium or Cobalt for hardened steel	ELK100
Knee pads	ELK100
1⅛" Diameter Socket	EBK1/2
Claw Hammer	EBK1/2
Cordless Drills – ½" chuck	EBK1/2
Drill Bits (Assorted Sizes)	EBK1/2
Drill Screw Setters & Drivers – Phillips, ¼" driver, etc	EBK1/2
Cordless Impact	EBK1/2
Uni Bit (Step Bit) – drilling plastic box holes, ½" dia. and ⅞" dia.	EBK1/2
Hole Saw – Diameter = pvc conduit. For drilling hole through the wall for conduit	EBK1/2
Flash light	EBK1/2

1.3 Recommended Supplies not supplied by Munters

Tools/Supplies	Echo Kit
18/2 Cond Shielded Cable – 24Vdc power	EBK1/2
18/4 Cond Shielded Cable – For Water Meters to Echo EPS & for Echo EPS to ventilation controller	EBK1/2
PVC Conduit – ¾" or 1" diameter. Length = barn wall thickness. 3 entry's per barn. These are for passing wire through the wall in 3 spots of barn	EBK1/2
PVC Coupler – Diameter = PVC conduit. For keeping conduit from sliding out of wall. 2 per conduit	EBK1/2
Staples/Wire Fasteners – Diameter = wire/cable sizes. To secure low voltage wire in building	EBK1/2
Zip Ties – Length 8" - option to secure low voltage wire in building	EBK1/2
Zip Ties – Length 14" (UV rated) – to secure low voltage wire from feed bin scale unit on feed lines entering the building	EBK1/2
For Outside US: installation Countries VAC cords or plug adapters for Ubiquity Access Point, 24Vdc Power Supply and Power Strips. If supplied from Lansing will have US 120 VAC Plugs	EBK1/2
18/3 Cond Shielded Cable – For RS232 communication of (2) Luamus Bin controls to (2) Echo ESS	ESK100
Option: 18/5 Cond Shielded Cable - for combining (2) Laumus 24v power & RS232 to (2) Echo ESS	ESK100
Ground wire – Size 12 AWG, calculate approx 15 feet per feed bin. Color green	ESK100
Ground Rod - Diameter ⅝". Length 10'. If 1 ground rod per feed bin does not already exist	ELK100
Ground Rod Clamp – Diameter same as rod	ELK100
Cutting Oil – (2) ½" diameter holes drilled into each feed bin leg	ELK100

Installation Instructions

2.

2.1 Installation Process

The installation of the Barn Kit may vary from our illustrations depending on the layout of the barn or farm. There are many similarities between barns and farms which allow for repeated installations or setups that we have attempted to show here in our installation manual. When barn design variations require a different approach from how placing the hardware inside the control room, main house or outside are shown, feel free to contact Munters for support and recommendations.

2.2 Echo Enclosure Mounting Tabs

Step 1

Each Echo Sensor Enclosure is supplied with a packet of four mounting tabs and hardware. Attach one mounting tab to each corner of the enclosure back using one of the machine screws supplied. *See Figures 1A, 1B and 1C.* Failure to use screw provided leads to potential of other screw to pass through enclosure and make contact with circuit board, causing Echo failure.

Figure 1A

Figure 1B

Figure 1C

Step 2

Repeat *Step 1* with all remaining Echos.

2.3 Junction Box (JBox) Preparation

Step 3

Each EPW100, contains (3) Junction Boxes. JBox mounted locations and wiring path to Echo's will determine number of 24vdc input and output wires required per enclosure and the watertight fittings to prepare holes for. If provided, consult the Munters Sonar/Echo layout drawing for locations of JBoxes.

Step 4

JBox enclosure Cover and Bottom align using the molded plastic male/female alignment offset tab found in one of the 4 corners cover screws. Incorrect alignment allows improper sealing of enclosure top and bottom, potentially leading to moisture or other foreign debris to enter and disrupt Echo Power System.

Step 5

Do not bring wires through either the sides, top or front of the enclosure. *See Figure 2.*

Step 6

With number of holes and top/bottom determined, mark wire in/out locations on bottom of enclosure. Example shows 3 in/out locations. *See Figure 3.*

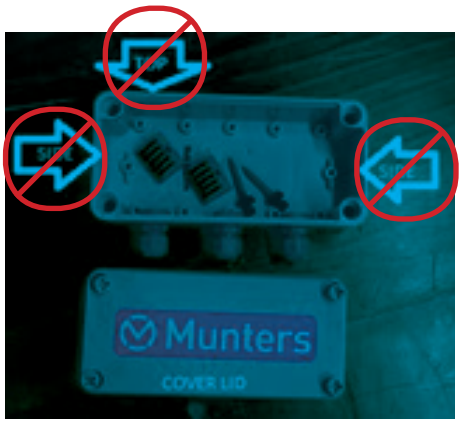


Figure 2

Figure 3

Step 7

Using a Uni Bit, drill ½" dia. holes at each mark. *See Figure 4.*

Step 8

Insert a Watertight Fitting [B] into each hole and secure with nut. *See Figure 5.*

Figure 4

Figure 5

Step 9

Recommended placement of JBoxes in house are at Control Room Sidewall, Opposite side of Building, at both ESS Automatic Silo Scales, and at the best Echo position to provide best coverage for up to two conductor wires. If provided, consult the Munters Sonar/Echo layout drawing for locations of JBoxes.

2.4 Junction Box (JBox) Mounting

Step 10

After determining the locations for the JBoxes, hold bottom of JBox up to wall, making sure that the watertight fittings point down and drill two pilot holes for mounting screws. *See Figure 6A and 6B.* Then fasten to wall using (2) Screws [C]. *See Figure 6C.* Next mount the remaining JBoxes.

Figure 6A

Figure 6B

Figure 6C

2.5 Junction Box (JBox) 24vdc Wiring

NOTE: Two-Conductor, Shielded Cable, 18 AWG recommended.

Step 11

Pull shielded cable to 1st JBox. *See Figure 7A.* From 1st JBox, pull shielded cable to 2nd JBox. *See Figure 7B.* Repeat this for 3rd JBox.

Step 12

Repeat Step 11 for any Echo at the end of line, such as the EBS. Repeat Step 11 for 24v to POE box (see Access Point instructions). Repeat Step 11 for any Echo placed in other areas of house, for example the ETH. From 1st JBox pull one shielded cable to each Echo it is meant for. Repeat step for each JBox to Echo it is meant for. This allows no junctions are done inside Echo and each has its own 24vdc power wire. Terminate cable in Echo and note wire colors used for +24vdc and –24vdc polarity.

Figure 7A

Figure 7B

Step 13

At 1st JBox, strip wire insulation from all cables in JBox. *See Figure 8A.* Next, strip ends of each individual wires. *See Figure 8B.*

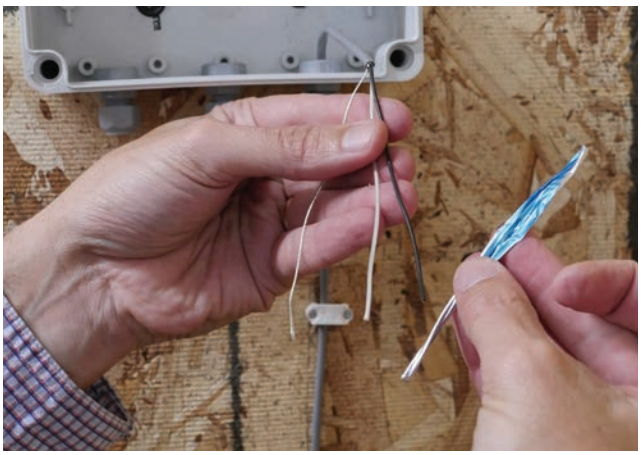


Figure 8A

Figure 8B

Step 14

Locate (2) WAGO 5-Pole Terminal Blocks [A]. One Terminal Block [A] will be for one color of wire and the other Terminal Block [A] will be for the 2nd color of wire. For example Black and White wires or Black and Red wires. Lift lever and insert wire into Terminal Block and lock in place by lowering lever. *See Figure 9A and 9B.*

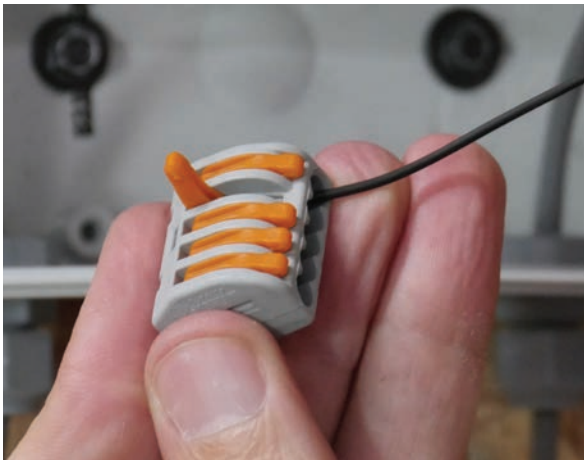


Figure 9A

Figure 9B

Step 15

Connect all bare shield wires together using 18 AWG wire nut or equivalent (not provided). *See Figure 10A and 10B.*

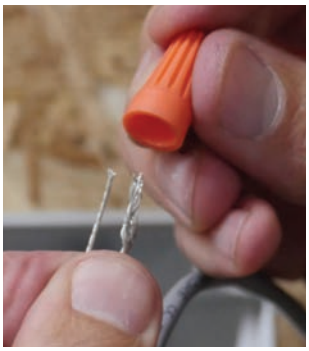


Figure 10A

Figure 10B

Step 16

Repeat Steps 13-15 for remaining JBoxes.

NOTE: Installing Echo's without connecting bare shield between terminal block and main power ground increases EMI noise potential in the Echo Sensors circuitry.

Step 17

Secure cabling ran in barn with wire staples, zip ties or equivalent. See local electrical codes for acceptable methods. *See Figure 11.*

Figure11

2.8 Echo Power Supply and Surge Protector

Step 42

In Control Room select a 120VAC outlet to use for power and determine where to mount the Surge Protector and 24vdc Power Supply. If provided, consult the Munters Sonar/Echo layout drawing for locations of Surge Protector and Power Supply. *See Figure 39A and 39B.*

Figure 39A

Figure 39B

Step 43

Locate the (4) mounting holes on the back of the Surge Protector. Hold the Surge Protector up to the wall and mark the location for the (4) mounting holes. *See Figure 40A and 40B.*

Figure 40A

Figure 40B

Step 44

Using the mounting screws provided with the Surge Protector, run screws into wall at the positions marked leaving ¼" space between the screw head and wall. *See Figure 41A and 41B.*

Figure 41A

Figure 41B

Step 45

Attach Surge Protector to wall by sliding mounting holes over wall screws and sliding the Surge Protector down until it locks in place. *See Figure 42A and 42B.*

Figure 42A

Figure 42B

Step 46

Locate the Echo Power Supply. If the mounting tabs are not already installed to the back, See Step 1 and 2 to install the mounting tabs on the Echo Power Supply.

Step 47

Mount the Echo Power Supply to wall using (4) Screws provided and Mounting Tabs. *See Figure 43.*

Figure 43

Step 48

Plug the Echo Power Supply into Surge Protector, then plug the Surge Protector into 120V outlet. *See Figure 44A and 44B.*

Figure 44A

Figure 44B

2.9 Echo EPS and Water Meter

Step 49

The Echo EPS can be connected to up to 4 existing digital water meters. Mount EPS inside building, near the water meters. Location is important to minimize wiring and allow for good wifi reception. Allow for any wiring to pass through wall from both the water meter and ventilation control. *See Figure 45A, 45B and 45C.*

Figure 45A

Figure 45B

Figure 45C

Step 50

Install Option 1: Determine if the water meter wire to the barn control can be rerouted and used again. The wire must reach the EPS output. Add a two wire shielded cable from the water meter to the EPS input. *See Figure 46A.* Install Option 2: Add a new four wire shielded cable from the EPS to the water meter. *See Figure 46B, 46C and 46D.*

Figure 46A

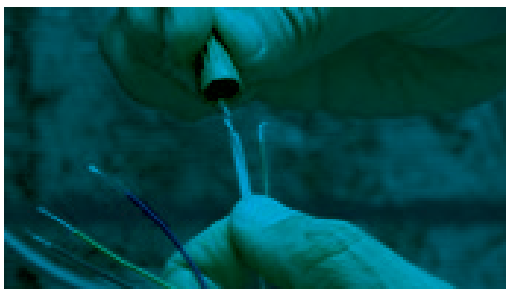


Figure 46B

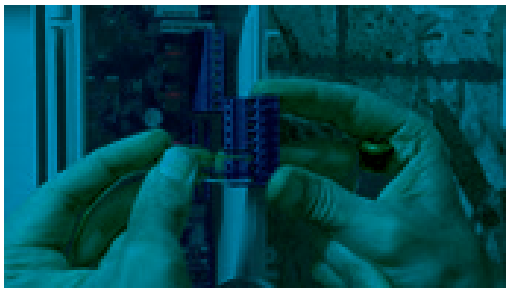


Figure 46C

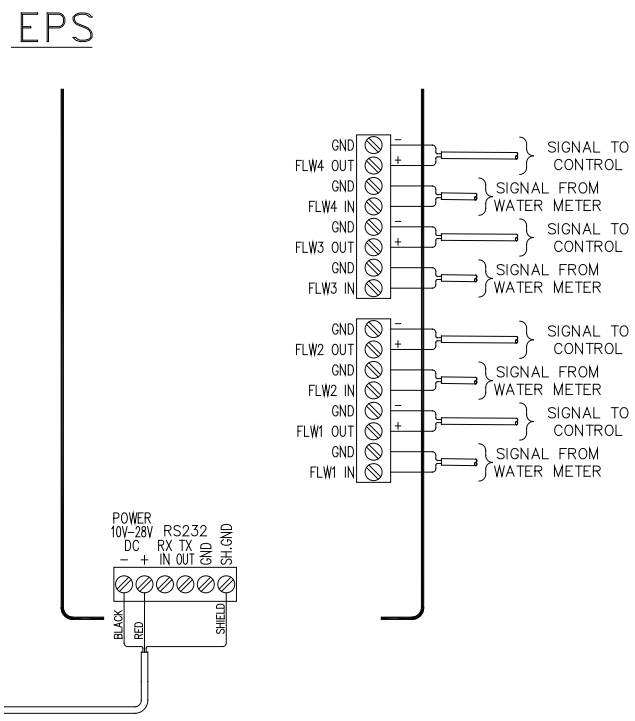


Figure 46D

2.10 Echo Hub 1: Echo Temperature/Humidity & Automatic Bird Scale w/ option to add Ammonia Sensor

Step 51

Hub 1 will measure Temperature, Humidity, Bird Weights and Ammonia (with optional ammonia sensor added). Install Mounting Tabs to enclosure (See Step 1). With Braided Polyester Lift Line [J] create a loop through the top two mounting tabs and fasten Lift Line to itself using Azuma Bolt & Nut [K] to allow for future adjustment. *See Figure 47A and 47B.*

Figure 47A

Figure 47B

Step 52

Install Open Eye Lag Screw [L] in ceiling truss. Allow Lift Line to hang from Lag Screw [L] and hang Hub 1 Enclosure. *See Figure 48A.* NOTE: Minimum height from floor to be out of birds reach. *See Figure 48B.*

Figure 48A

Figure 48B

Step 53

Determine the location for the Hanging Automatic Bird Scale Platform. Drill four ⅛" pilot holes into truss or solid cross board using the Hitching Ring [U] as a guide. Then using (4) Screws [C] attach Hitching Ring [U] to ceiling. *See Figure 49.*

Figure 49

Step 54

Hook one end of the Automatic Bird Scale Load Cell to Spring Snap Hook [T], then hook the Spring Snap Hook [T] to the Hitching Ring [U]. *See Figure 50.*

Figure 50

Step 55

Locate the smaller Automatic Bird Scale Pole and thread the Hook Bolt with Nut [S] into the end of pole with nut until the 2 nuts meet. *See Figure 51.*

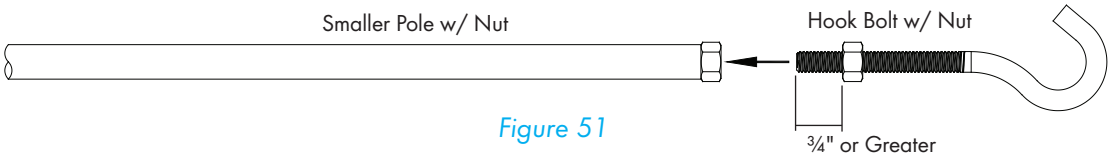


Figure 51

Step 56

Start to thread (2) Star Knob [R] into the two holes in the larger Automatic Bird Scale Pole. Slide the smaller Automatic Bird Scale Pole into the larger Pole to the desired position and lock in place by tightening Star Knobs [R]. *See Figure 52A and 52B.*

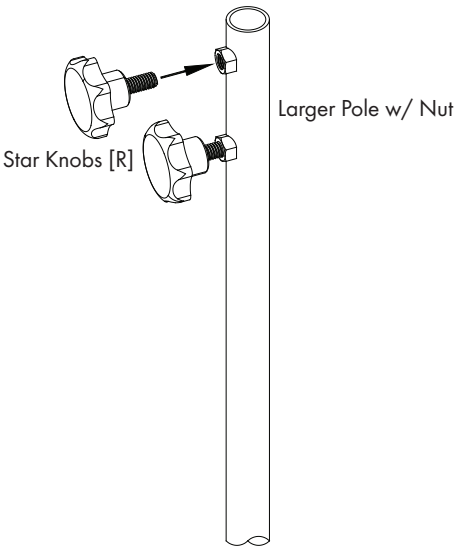


Figure 52A

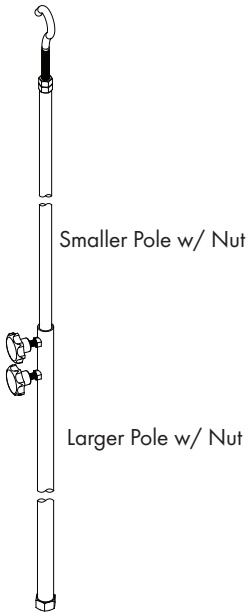


Figure 52B

Step 57

On the end of the larger Automatic Bird Scale Pole with the nut, attach the Automatic Bird Scale Platform and Balancing weight to the pole using (2) Washer [P], (1) Splitlock Washer [N] and Bolt [M]. *See Figure 53.*

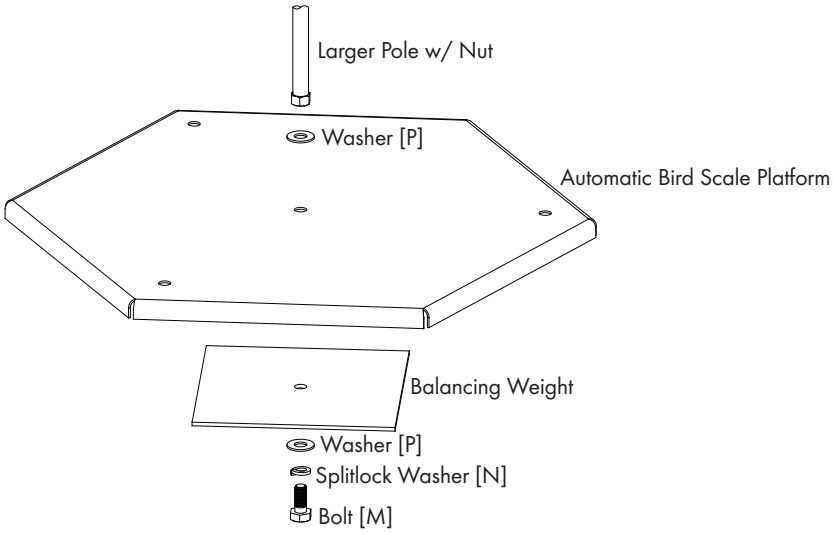


Figure 53

Step 58

Hang the hook end of the Automatic Bird Scale Platform assembly on the Automatic Bird Scale Load Cell. Use the Star Knobs to adjust the height of the Platform. *See Figure 54.*

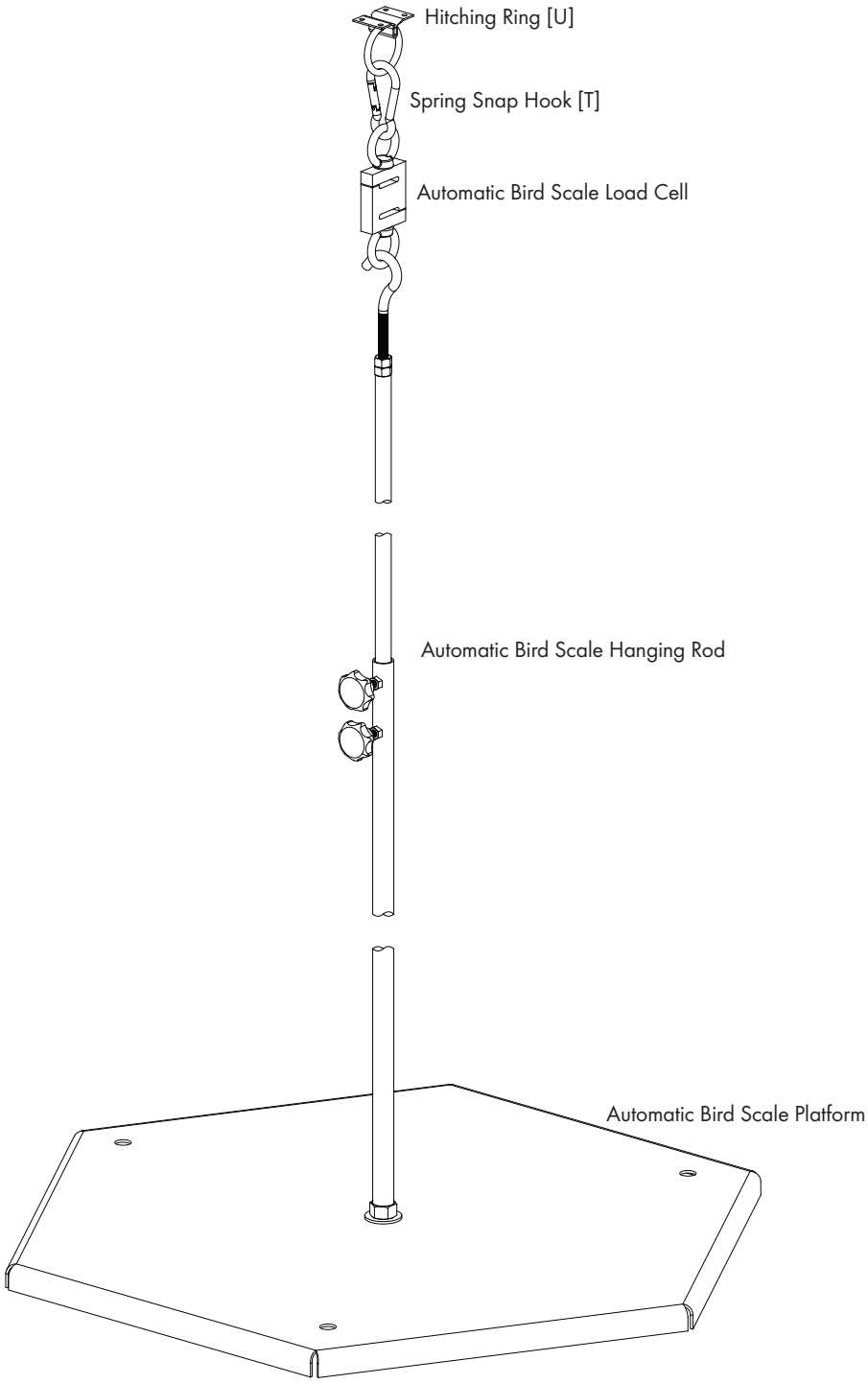


Figure 54

2.11 Echo Hub 2: Echo Pulse Splitter and Automatic Silo Scale

Step 59

Hub 2 will measure 1 - 4 water meter pulses and feed bin weights. Install Mounting Tabs to back of Hub 2 enclosure (See Step 1). Locate a mounting spot on the outside wall near the feed bins. Allowing the four conductor, shielded cable(s) to enter wall from ESBS Feed Bin Junction Box(es). *See Figure 55.*

Figure 55

Step 60

Pull four conductor, shielded cable from the ESBS and route wires into Hub 2 through one of the provided watertight fittings. Terminate wires to the Scale Input terminals, SH(shield), EX+(Red), S+(Green), S–(White), EX–(Black). *See Figure 56A.* Install additional Hub 2's and repeat this step for wiring instructions for additional feed bins or if feed bins and water meter proximity is out of reach. *See Figure 56B.*

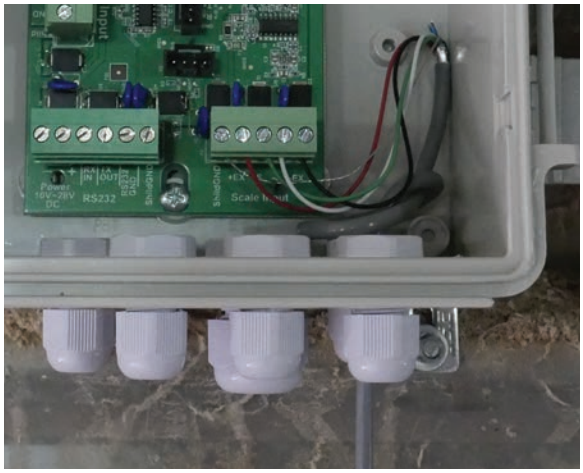


Figure 56A

Figure 56B

Step 61

Determine number of water meters to be measured. Recommended method of routing wires is from water meters to Hub 2 Water Meter # Input. Then from that Water Meter # Output to the Main Control. *See Figure 57.*

Figure 57A

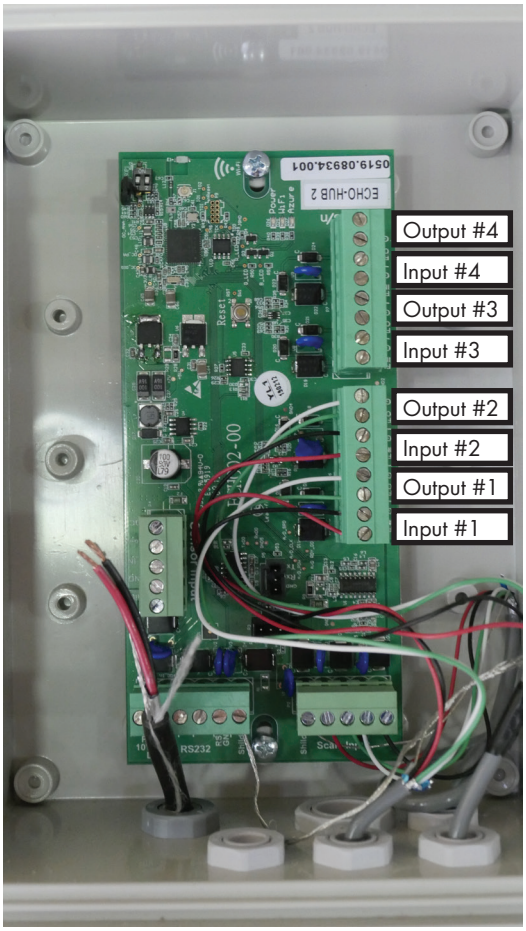


Figure 57B

NOTE: A Qualified Electrician is recommended when working inside barn control. All wiring should be installed in accordance with National, State, and Local electrical codes.

Step 62

Connect FLW#1 INPUT to Water Meter #1. Connect FLW#1 OUTPUT to Barn Control Water Meter #1. Repeat this step for Water Meter #2, #3 and #4. *See Figure 57B.*

Troubleshooting

3.

3.3 Echo Troubleshooting Procedures

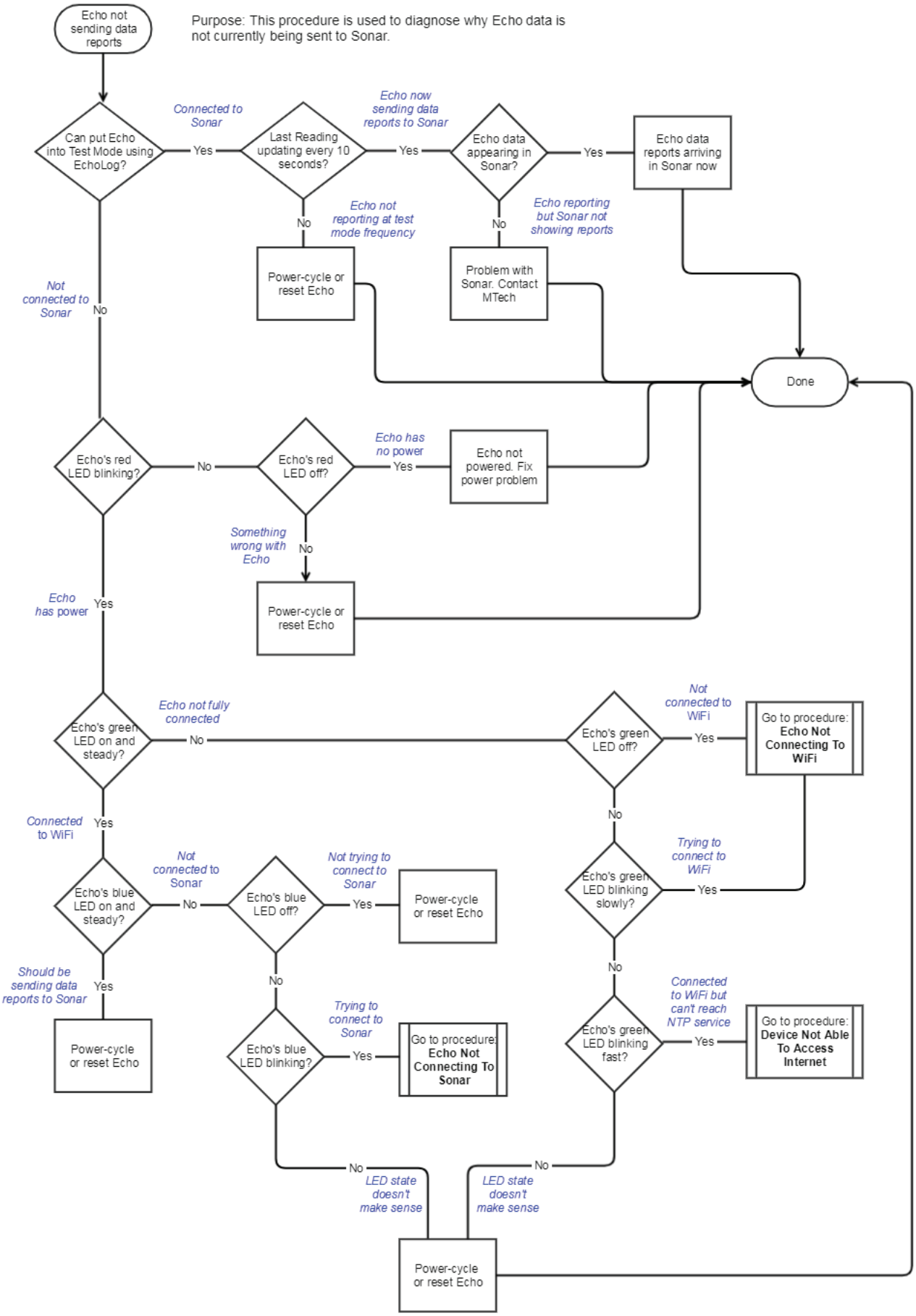
The troubleshooting procedures on the following pages are used to identify the cause of problems with an Echo installation. The most common problem is expected to be an Echo that is offline and not sending data reports to Sonar.

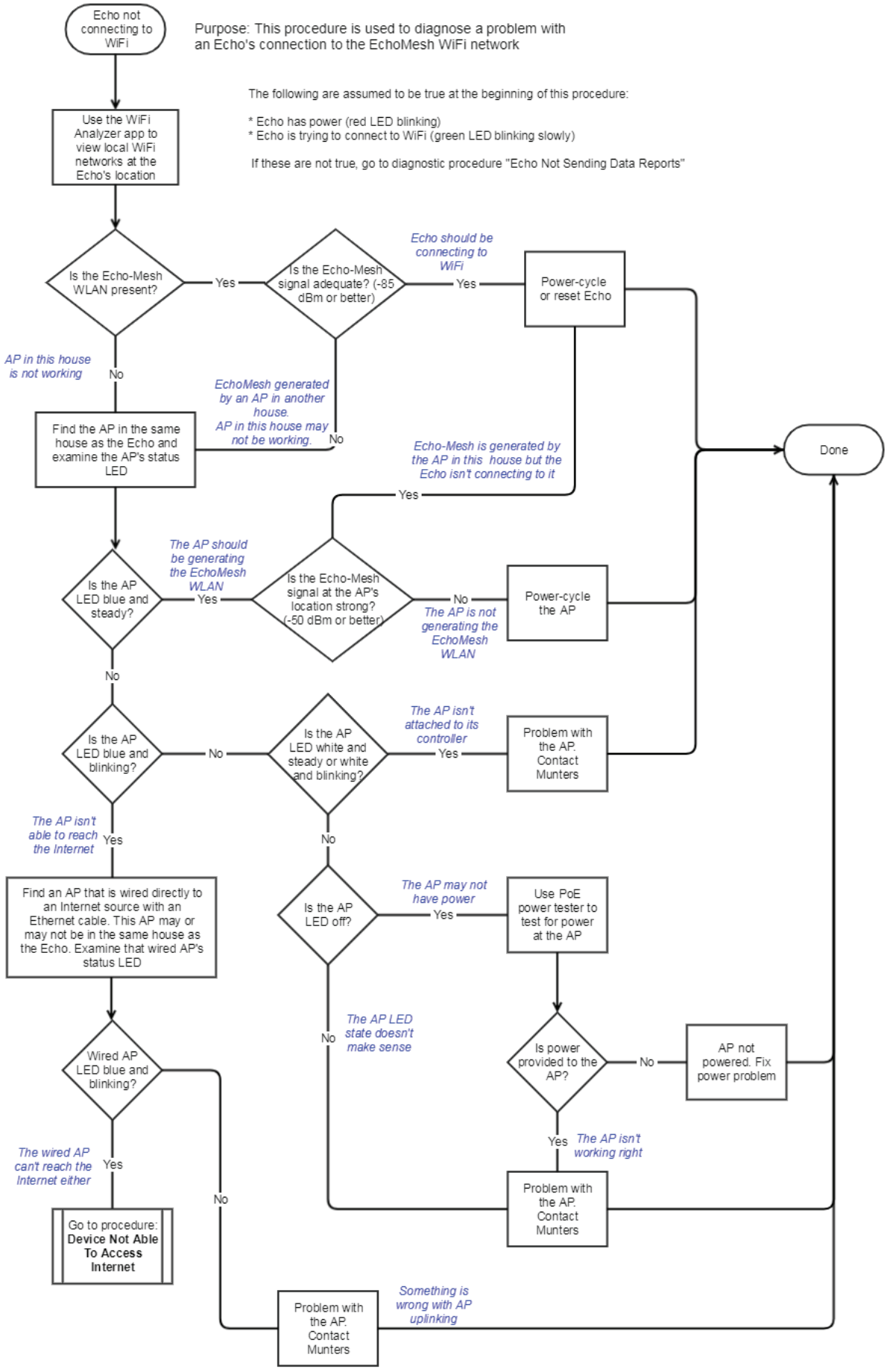
If the Sonar app indicates that an Echo is offline, start at the top of the **Echo Not Sending Data Reports** procedure. That diagnostic procedure may lead you to another procedure, such as one of those listed below:

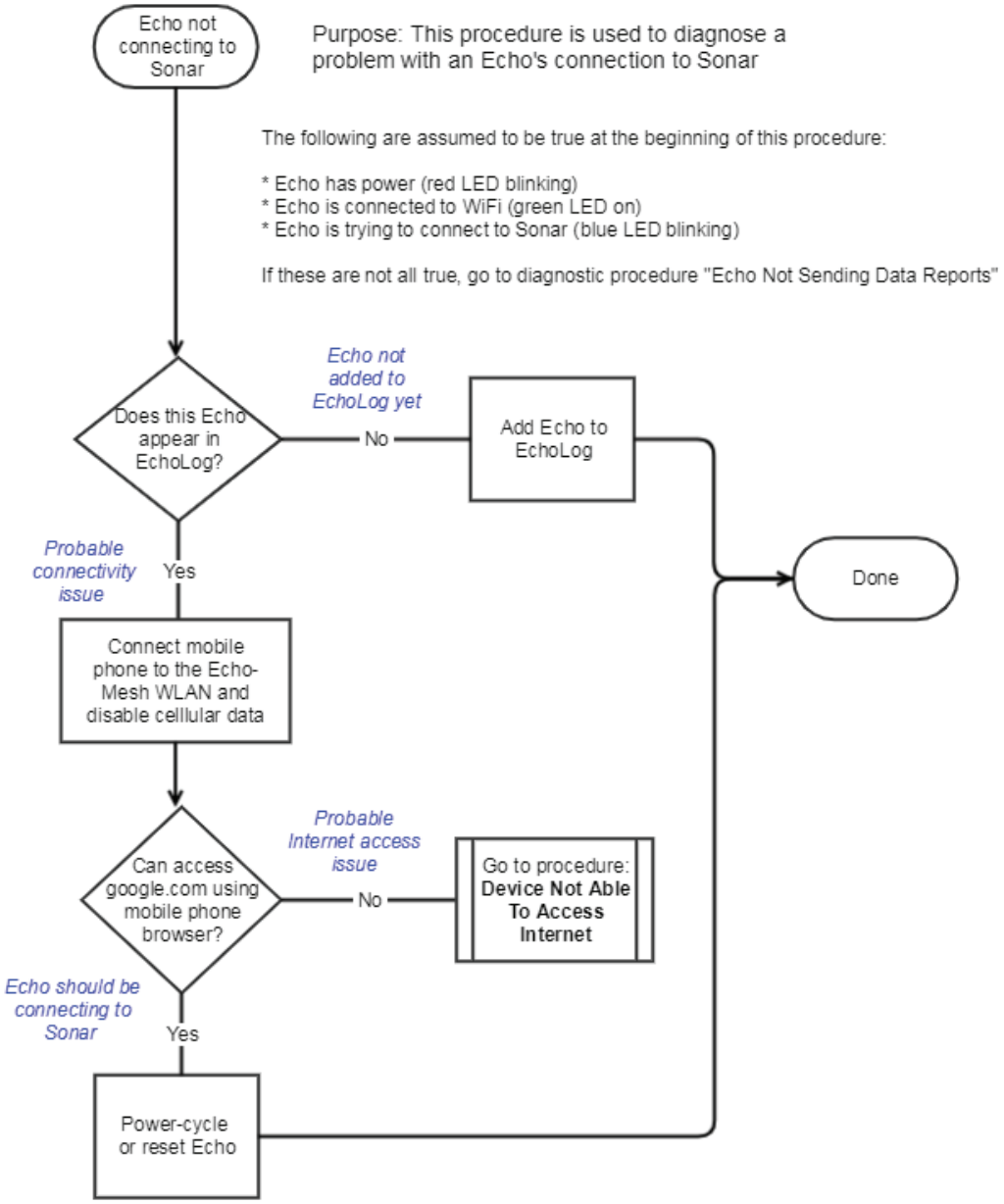
- **Echo Not Connecting To Wifi:** The Echo has power and is trying to connect to WiFi, but has not connected.
- **Echo Not Connecting To Sonar:** The Echo has power and is connected to WiFi. It's trying to connect to Sonar, but has not connected.
- **Device Not Able To Reach Internet:** An Echo or a WiFi Access Point (AP) is connected but unable to access the Internet.

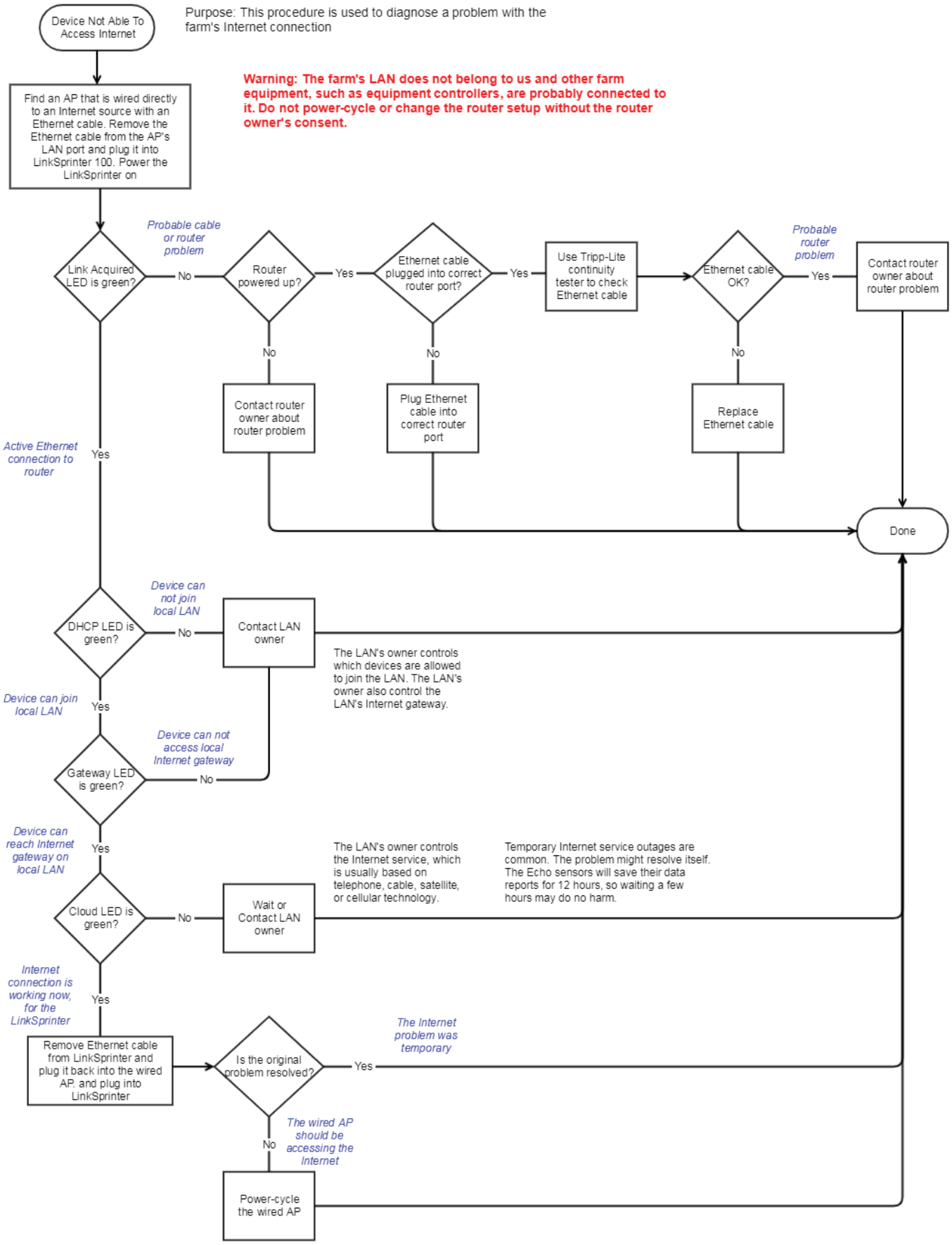
These diagnostic procedures assume that the user has access to the farm's houses and control rooms, plus these tools:

- The EchoLog mobile app
- A mobile device that detects nearby WiFi APs and their signal strength. The WiFi Analyzer app for Android mobile devices is recommended.
- A Fluke Networks LinkSprinter 100 Network Tester
- A Tripp Lite Network Cable Continuity Tester for Ethernet cables, or equivalent
- An Ethernet PoE power detector that can detect 24 VDC Active and Passive PoE




Echo not connecting to WiFi
Purpose: This procedure is used to diagnose a problem with an Echo's connection to the EchoMesh WiFi network
The following are assumed to be true at the beginning of this procedure:
* Echo has power (red LED blinking)
* Echo is trying to connect to WiFi (green LED blinking slowly)
If these are not true, go to diagnostic procedure "Echo Not Sending Data Reports"
Use the WiFi Analyzer app to view local WiFi networks at the Echo's location
Is the Echo-Mesh WLAN present?
Yes
Is the Echo-Mesh signal adequate? (-85 dBm or better)
Yes
Echo should be connecting to WiFi
Power-cycle or reset Echo
AP in this house is not working
No
Find the AP in the same house as the Echo and examine the AP's status LED
EchoMesh generated by an AP in another house. AP in this house may not be working.
No
Echo-Mesh is generated by the AP in this house but the Echo isn't connecting to it
Yes
Done
Is the AP LED blue and steady?
The AP should be generating the EchoMesh WLAN
Yes
Is the Echo-Mesh signal at the AP's location strong? (-50 dBm or better)
No
The AP is not generating the EchoMesh WLAN
Power-cycle the AP
No
Is the AP LED blue and blinking?
No
Is the AP LED white and steady or white and blinking?
The AP isn't attached to its controller
Yes
Problem with the AP. Contact Munters
The AP isn't able to reach the Internet
Yes
No
Find an AP that is wired directly to an Internet source with an Ethernet cable. This AP may or may not be in the same house as the Echo. Examine that wired AP's status LED
Is the AP LED off?
The AP may not have power
Yes
Use PoE power tester to test for power at the AP
Is power provided to the AP?
No
AP not powered. Fix power problem
Yes
The AP isn't working right
Problem with the AP. Contact Munters
No
The AP LED state doesn't make sense
Wired AP LED blue and blinking?
The wired AP can't reach the Internet either
Yes
Go to procedure: Device Not Able To Access Internet
No
Problem with the AP. Contact Munters
Something is wrong with AP uplinking





Echo Log Process

4.

On your mobile device go to the Play Store (Android) or to App Store (iphone) and search and download application "EchoLog" (Munters). After installations of the Echo units have been completed, you will scan the QR code on the sensor boxes, this will activate the sensor installed to start transferring data to the cloud. The Farm Kit will allow for EchoMesh Wi-Fi network to become functional.

For the Farm Kit, you will not need to scan the QR code. This is done for:
Echo Temperature Humidity Sensor
Echo Automatic Bird Scale Sensor
Echo Automatic Silo Scale Sensor
Echo Pulse Splitter

4.1 Configuring the Mobile Application

Step 1

Open "EchoLog" mobile application. *See Figure 60.*

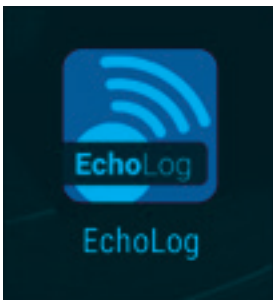


Figure 60

Step 2

Enter the following in the fields: *See Figure 61.*

- **Username:** (Provided by Munters)
- **Password:** (Provided by Munters)

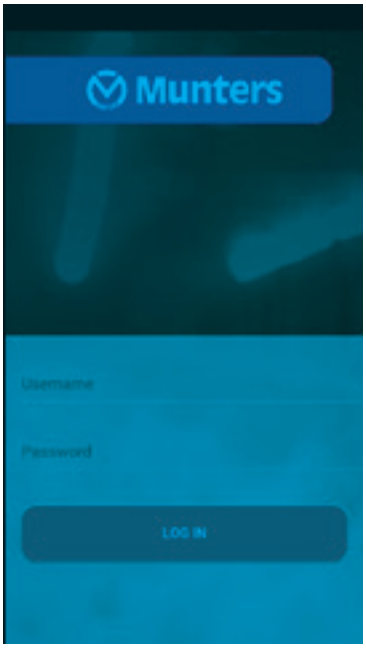


Figure 61

Step 3

Confirm that the location services (GPS) is enabled for auto barn location detection.

Step 4

Select the farm in which you are working. *See Figure 62.*

Figure 62

- Google Maps displays your location.

Step 5

Confirm your location by clicking the **Right Arrow** sign (option).

Step 6

Select specific house from the list. *See Figure 63.*

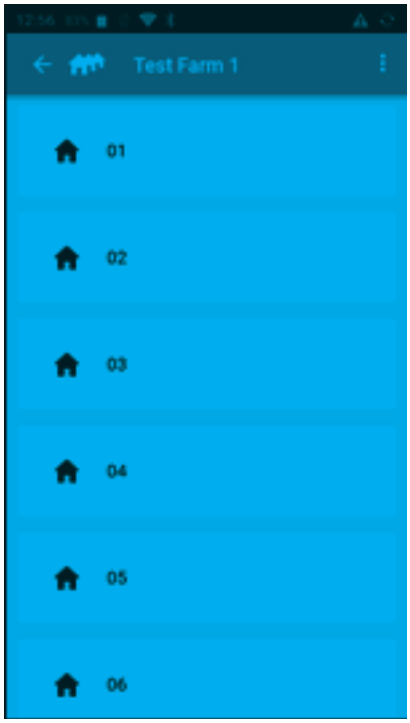


Figure 63

4.2 Adding/Registering a new device

Step 1

Click the [+] sign to add a new "Echo Manufacturing" sensor device on the site. *See Figure 64.*

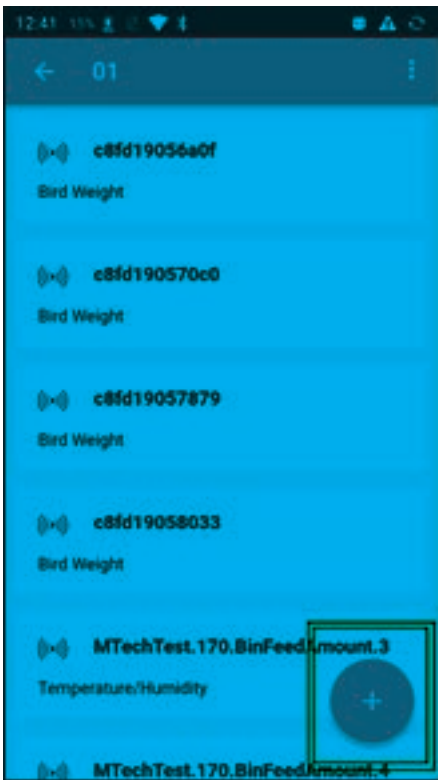


Figure 64

Step 2

Click **SCAN** and point the camera to the printed QR sticker. *See Figure 65.*

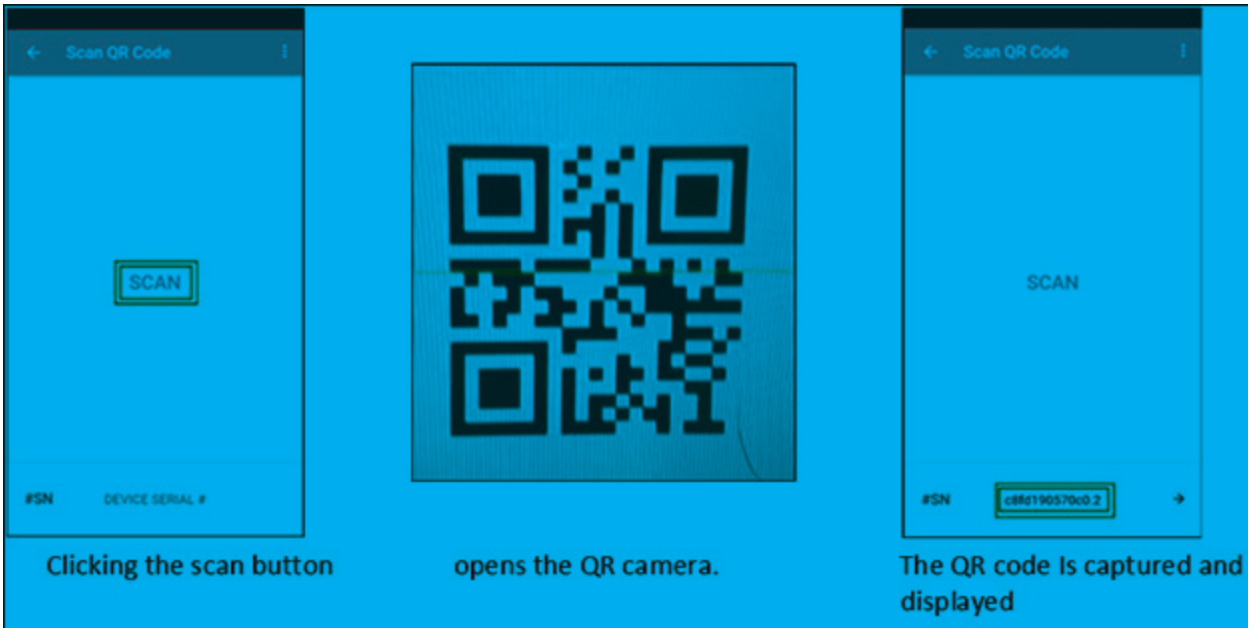


Figure 65

Note: You can insert the QR code manually, via mobile devices keyboard:

a. Click the mobile devices **Back** button. The QR code camera closes.
b. Click **Device Serial #**. The keyboard appears.
c. Insert the serial number (found under the QR code).
d. Click the **Right Arrow** key to complete the process.

Step 3A

Select the System Location (Front/ Middle/ Back). *See Figure 66.*

Step 3B

For ESS, select Feed Bin (A, B, etc.).

Step 3C

For EPS select Liter/Gallon.
select Quantity
select No. of Meters

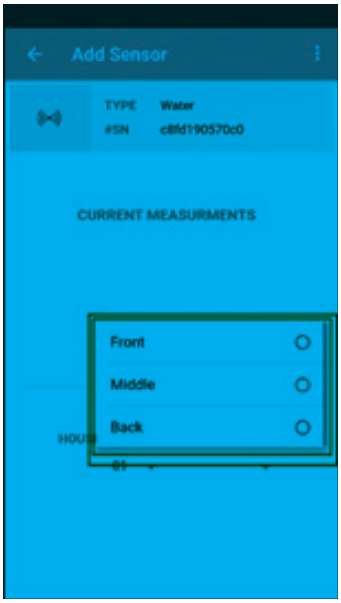


Figure 66

Step 4

Click Install. *See Figure 67.*

Step 5

Click **Save**. *See Figure 68.* Displays values transmitted by the EPS.

Figure 67

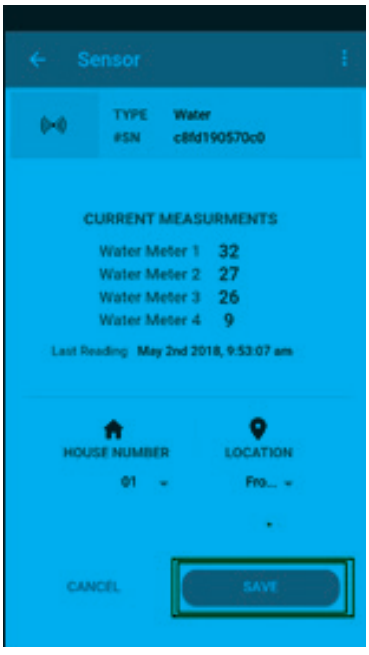


Figure 68

Device Name	Common Name	Technical Description	Image
Echo Temperature/RH	ETH	Vdc Input: 12-28VDC The sensor shows best performance when operated within recommended normal temperature and humidity range of 5 – 60°C [41 - 140°F] and 20 – 80 %RH, respectively. Long term exposure to conditions outside normal range, especially at high humidity, may temporarily offset the RH signal (e.g.+3%RH after 60h at >80%RH). After returning into the normal temperature and humidity range the sensor will slowly come back to calibration state by itself.	<insert device image>
Echo Automatic Bird Scale	EBS	Vdc Input: 12-28VDC Load Cell capacity 50Kg	<insert device image>
Echo Automatic Silo Leg Bracket	ESLB		<insert device image>
Echo Automatic Bird Scale Platform			<insert device image>
Echo Automatic Bin/Silo Scale	ESS	Vdc Input: 12-28VDC 4 wire connection to ESBS Summing Box Shield connector	<insert device image>
Junction Box for Bin Wiring	ESBS	Outdoor enclosure Up to 8 Load Cells 3mV/V Screw-clamp terminals	<insert device image>
Echo Pulse Splitter	EPS	Vdc Input: 12-28VDC Split pulse of up to 4 water meters	<insert device image>
Echo Quick Lift Load Cells		Load cell capacity 10KLb	<insert device image>
Echo Mesh		(Attached)	<insert device image>
Echo Power Supply		Power supply: 90-264VAC Output: 24VDC 60W 2.5A	<insert device image>

Testing and Calibrating

6.

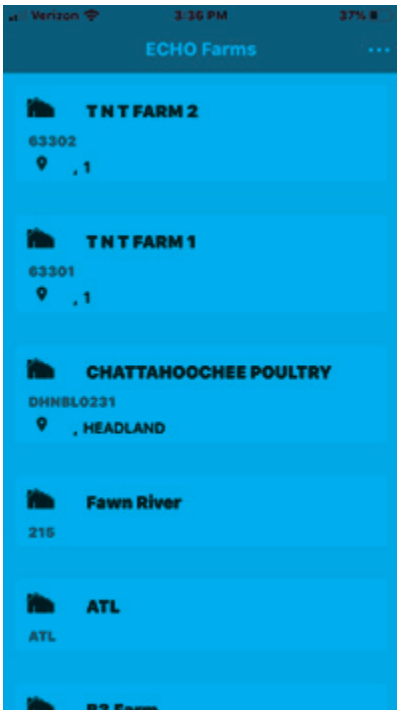
Required: EchoLog App. If username and password required contact Munters

Step 1

Open EchoLog

Step 2

In ECHO Farms select Farm



Step 3

Select House number

Step 4

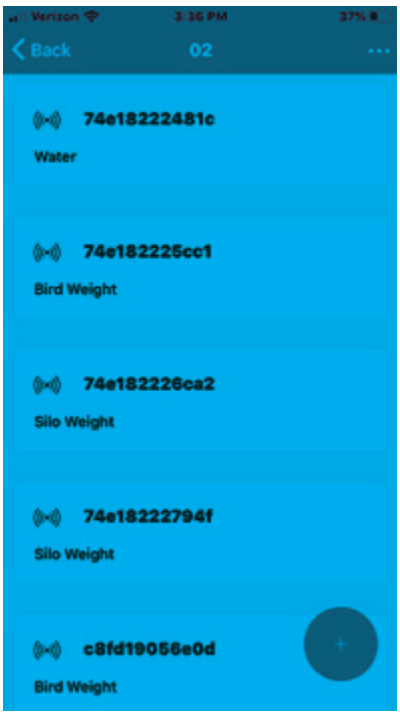
For ESS proceed to next step. For EBS skip to step xx

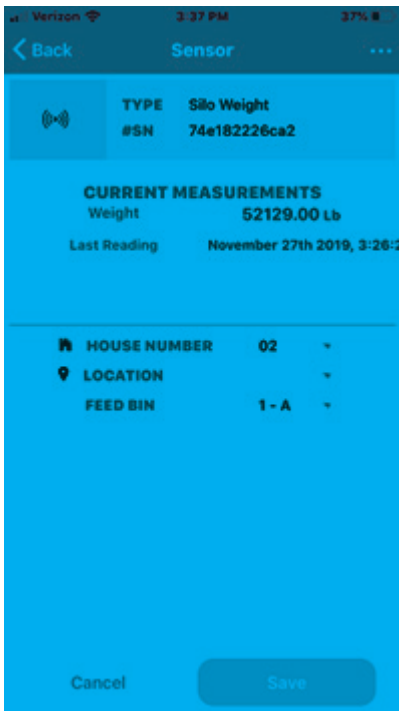
6.1 ESS & ESBS - Automatic Silo Scales

Calibrate

Step 5

Select Silo Weight ESS to be calibrated.





Step 6

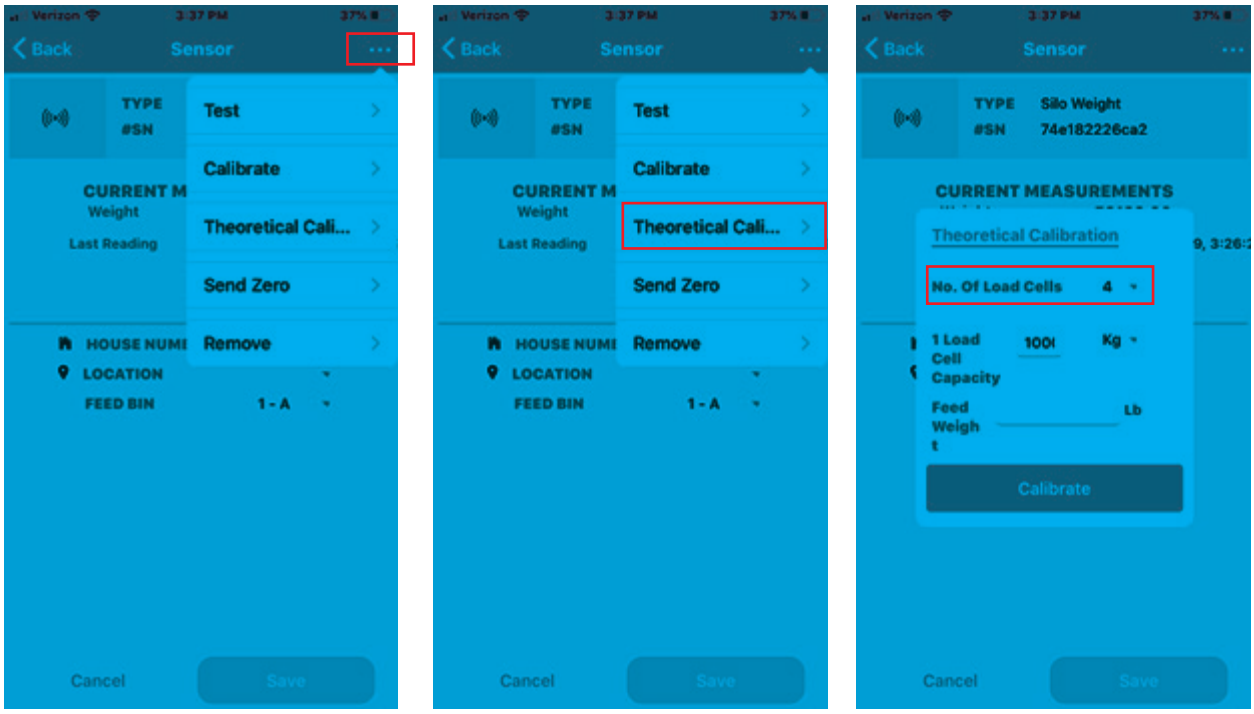
Select Menu ··· at the top of the screen

Step 7

Select Theoretical Calibrate

Step 8

Enter No. of Load Cells (examples 4, 6 or 8)



Step 9

Enter 1 Load Cell Capacity (ex. 10,000 lbs)

Step 10

Enter current Feed Weight (example 0 or from feed ticket delivery)

Step 11

Press Calibrate

Test

Required: EchoLog App. Test mode will show new values every 10 seconds for two minutes. The weight in use value should appear in EchoLog from the weight being detected after it was applied or after it was removed.

Step 1

In EchoLog select ESS to be tested.

Step 2

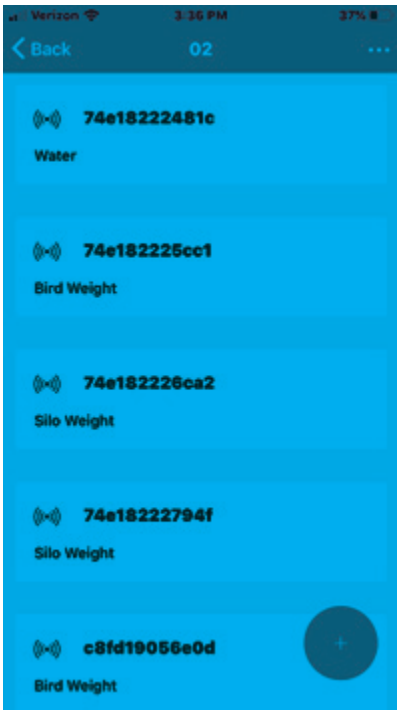
Select Menu ··· at the top of the screen

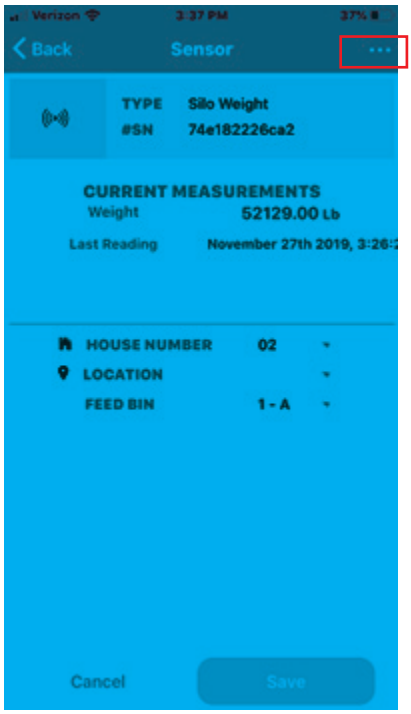
Step 3

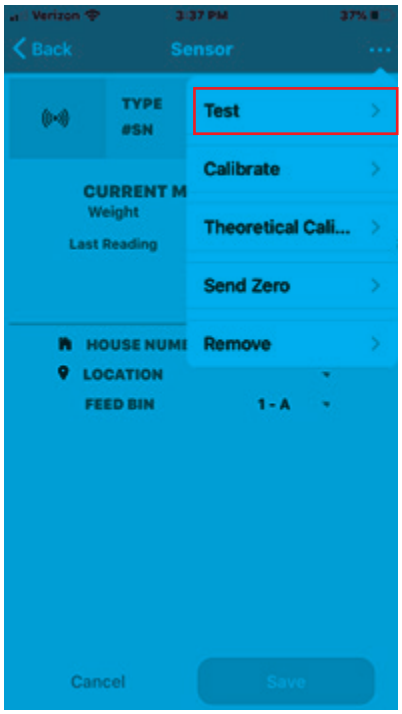
Select Test

Step 4

Stand on Each Leg and view EchoLog to confirm the weight increase equals body weight







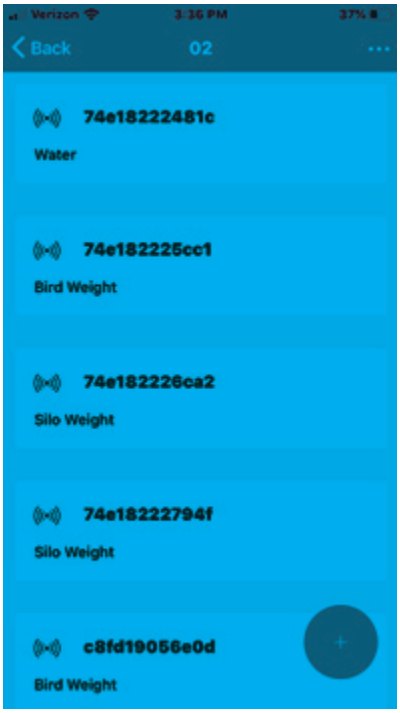
6.2 EBS - Automatic Bird Scales

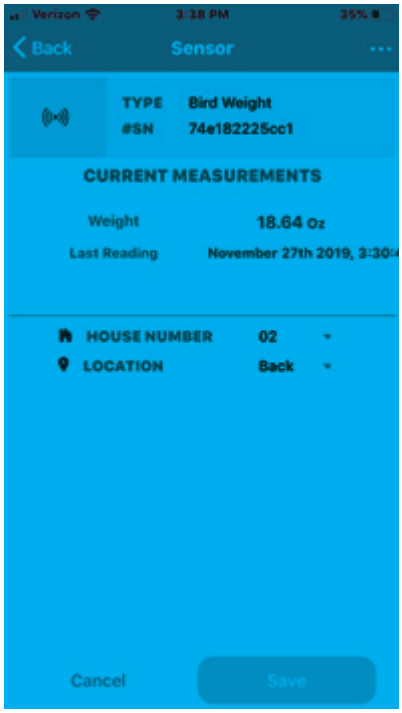
Calibrate

Required: EchoLog App. Any type of weight can be use with its known weight value. Example a 1.0kg barbell weight has been weighed elsewhere and is 1.03kg (1030grams).

Step 1

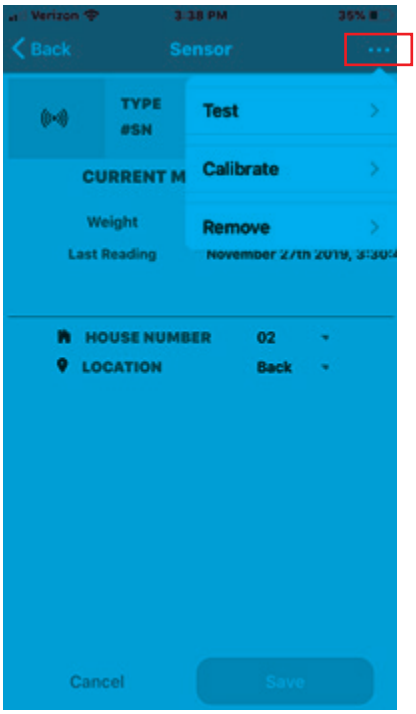
In EchoLog select EBS to be calibrated.





Step 2

Select Menu ··· at the top of the screen

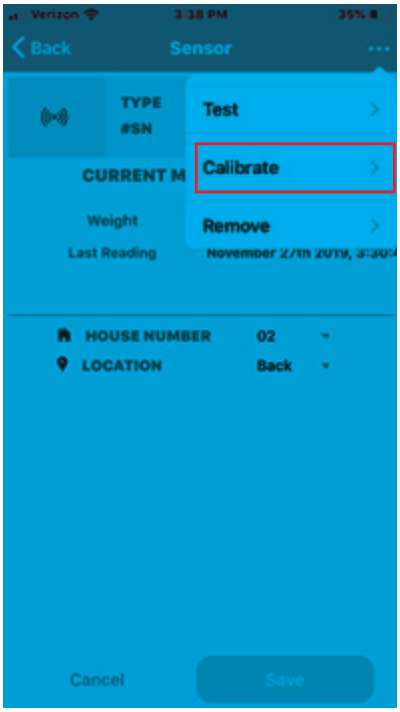


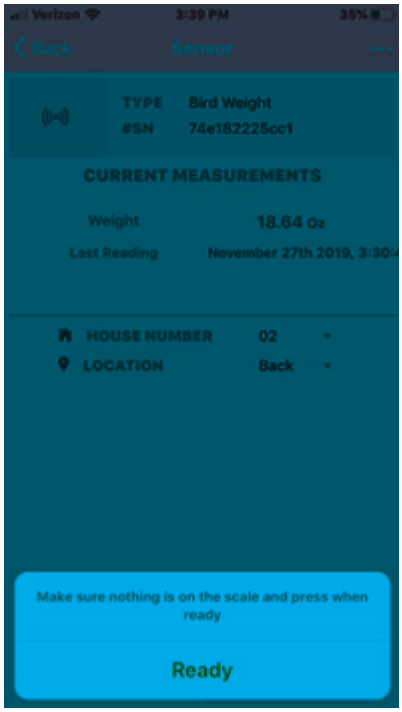
Step 3

Select Calibrate

Step 4

Follow remaining instructions provided in EchoLog.





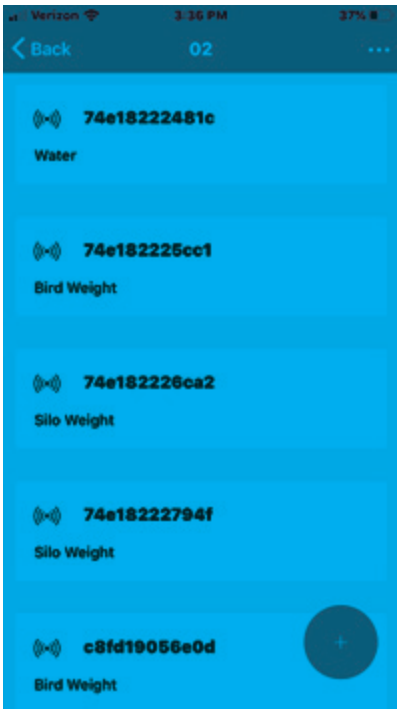
Test

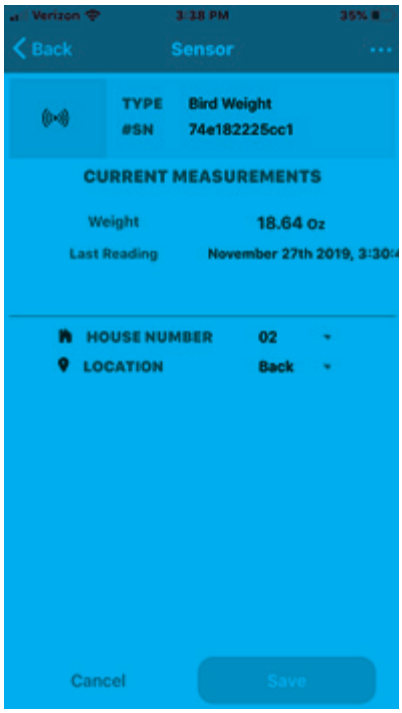
Required: EchoLog App. Two test weights are recommended. The calibration weight can be used and a second weight recommended is 50 grams (approximately a 1 day old bird).

Test mode will show new values every 10 seconds for two minutes. The weight in use value should appear in EchoLog from the weight being detected after it was applied or after it was removed.

Step 1

In EchoLog select EBS to be tested.





Step 2

Select Menu ··· at the top of the screen

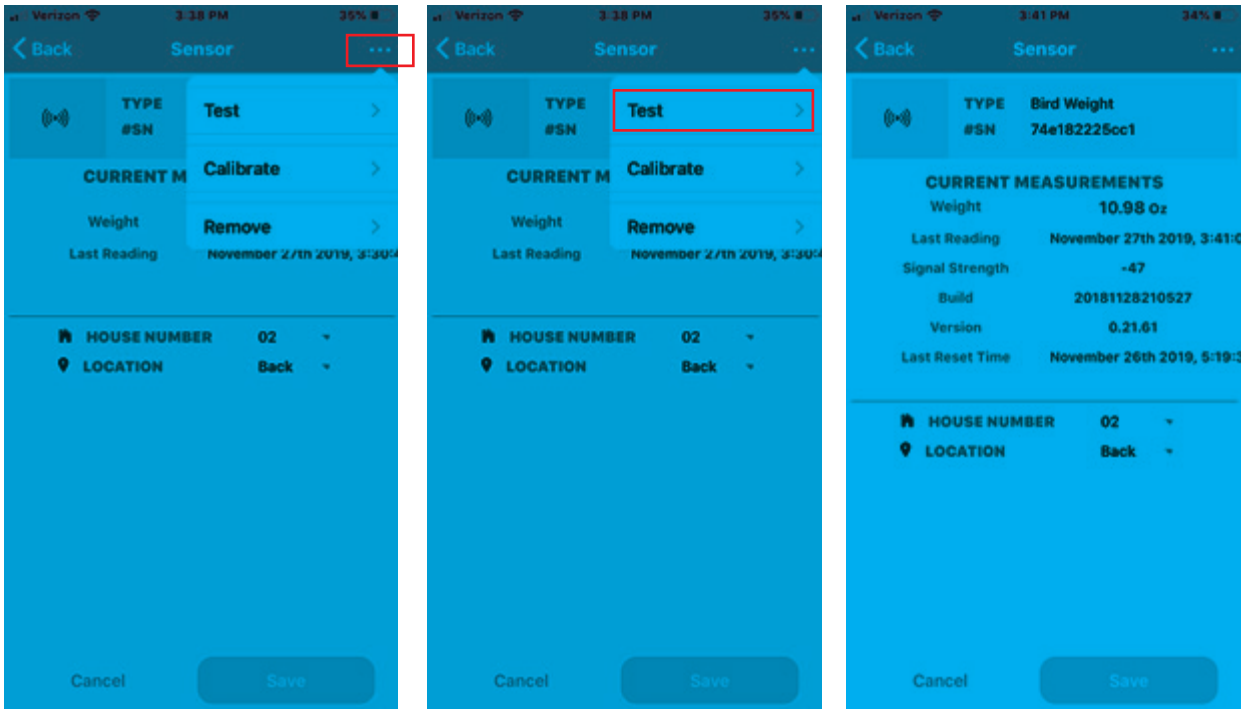
Step 3

Select Test

Step 4

When Test Mode begins the screen will start showing

1. EchoMesh WiFi Signal strength
2. Last Reading Time will update to the current clock time and then change every 10 seconds.
3. Weights



Step 5

Once the weight shows 0.0, place the known test weight on the scale. Within the next 10 seconds, the new cycle will change and this known weight appears in EchoLog. If not wait another 10 seconds or until the known test weight eventually appears. Go to step 6.

Step 6

When 0.0 reappears, remove the first test weight. In the next 10 second cycle the known weight will appear again after it had been removed. If not wait another 10 seconds or until the weight eventually appears.

Step 7

Follow Steps 5 & 6 using a second test weight on the scale.

Step 8

Repeat Steps 5 & 6 using both the first and second test weight onto the scale. When 0.0 appears remove one of the two weights and confirm this weight appears in Echolog.

FCC Compliance

7.

FCC Compliance Statement

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio and television reception.

However, there is no guarantee that interference will not occur in a particular installation. If this device does cause such interference, which can be verified by turning the device off and on, the user is encouraged to eliminate the interference by one or more of the following measures:

- Re-orient or re-locate the receiving antenna.
- Increase the distance between the device and the receiver.
- Connect the device to an outlet on a circuit different from the one that supplies power to the receiver.
- Consult the dealer or an experienced radio/TV technician.

WARNING! Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference that may be received or that may cause undesired operation.

Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisee aux deux conditions suivantes :(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioelectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement.

A distance of at least 20 cm. between the equipment and all persons should be maintained during the operation of the equipment.

Une distance d'au moins 20 cm. entre l'équipement et toutes les personnes devraient être maintenues pendant le fonctionnement de l'équipement

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Warranty

8.

Warranty and technical assistance

Munters products are designed and built to provide reliable and satisfactory performance but cannot be guaranteed free of faults; although they are reliable products they can develop unforeseeable defects and the user must take this into account and arrange adequate emergency or alarm systems if failure to operate could cause damage to the articles for which the Munters plant was required: if this is not done, the user is fully responsible for the damage which they could suffer.

Munters extends this limited warranty to the first purchaser and guarantees its products to be free from defects originating in manufacture or materials for one year from the date of delivery, provided that suitable transport, storage, installation and maintenance terms are complied with. The warranty does not apply if the products have been repaired without express authorization from Munters, or repaired in such a way that, in Munters' judgment, their performance and reliability have been impaired, or incorrectly installed, or subjected to improper use. The user accepts total responsibility for incorrect use of the products.

The warranty on products from outside suppliers fitted to the Echo, (for example power supplies, cables, etc.) is limited to the conditions stated by the supplier: all claims must be made in writing within eight days of the discovery of the defect and within 12 months of the delivery of the defective product. Munters has thirty days from the date of receipt in which to take action, and has the right to examine the product at the customer's premises or at its own plant (carriage cost to be borne by the customer). Munters at its sole discretion has the option of replacing or repairing, free of charge, products which it considers defective, and will arrange for their dispatch back to the customer carriage paid. In the case of faulty parts of small commercial value which are widely available (such as bolts, etc.) for urgent dispatch, where the cost of carriage would exceed the value of the parts, Munters may authorize the customer exclusively to purchase the replacement parts locally; Munters will reimburse the value of the product at its cost price.

Munters will not be liable for costs incurred in demounting the defective part, or the time required to travel to site and the associated travel costs. No agent, employee or dealer is authorized to give any further guarantees or to accept any other liability on Munters' behalf in connection with other Munters products, except in writing with the signature of one of the Company's Managers.

WARNING: In the interests of improving the quality of its products and services, Munters reserves the right at any time and without prior notice to alter the specifications in this manual.

The liability of the manufacturer Munters ceases in the event of:

- dismantling the safety devices;
- use of unauthorized materials;
- inadequate maintenance;
- use of non-original spare parts and accessories.

Barring specific contractual terms, the following are directly at the user's expense:

- preparing installation sites;
- providing an electricity supply (including the protective equipotential bonding (PE) conductor, in accordance with CEI EN 60204-1, paragraph 8.2), for correctly connecting the equipment to the mains electricity supply;
- providing ancillary services appropriate to the requirements of the plant on the basis of the information supplied with regard to installation;
- tools and consumables required for fitting and installation;
- lubricants necessary for commissioning and maintenance.

It is mandatory to purchase and use only original spare parts or those recommended by the manufacturer.

Dismantling and assembly must be performed by qualified technicians and according to the manufacturer's instructions.

The use of non-original spare parts or incorrect assembly exonerates the manufacturer from all liability. Requests for technical assistance and spare parts can be made directly to the nearest Munters office. A full list of contact details can be found on the back page of this manual.

Echo Barn Kit is developed and produced by Munters Corporation, Lansing, Michigan U.S.A. 1-800-227-2376

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