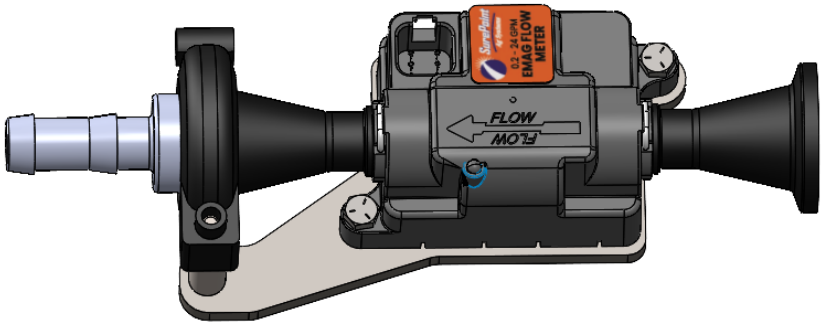
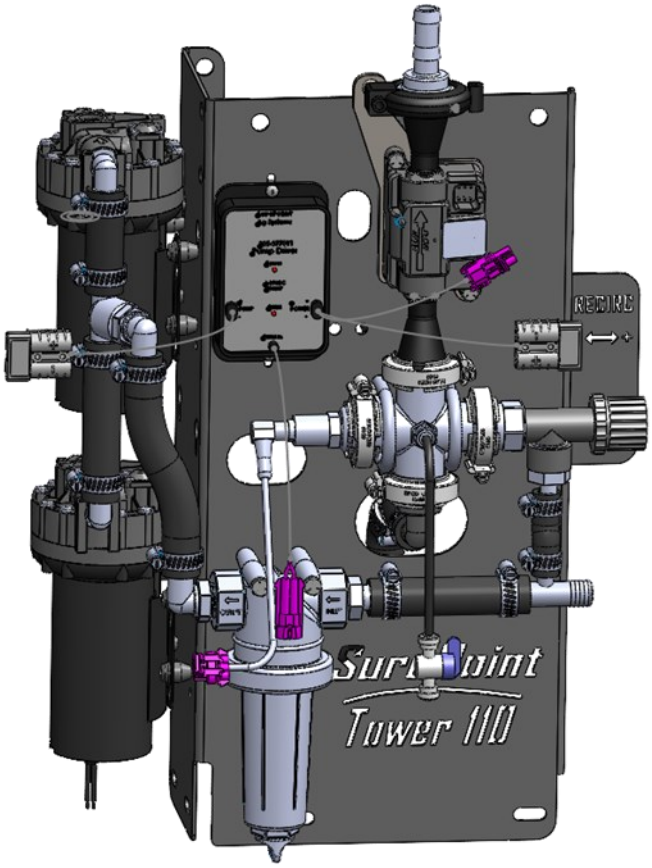
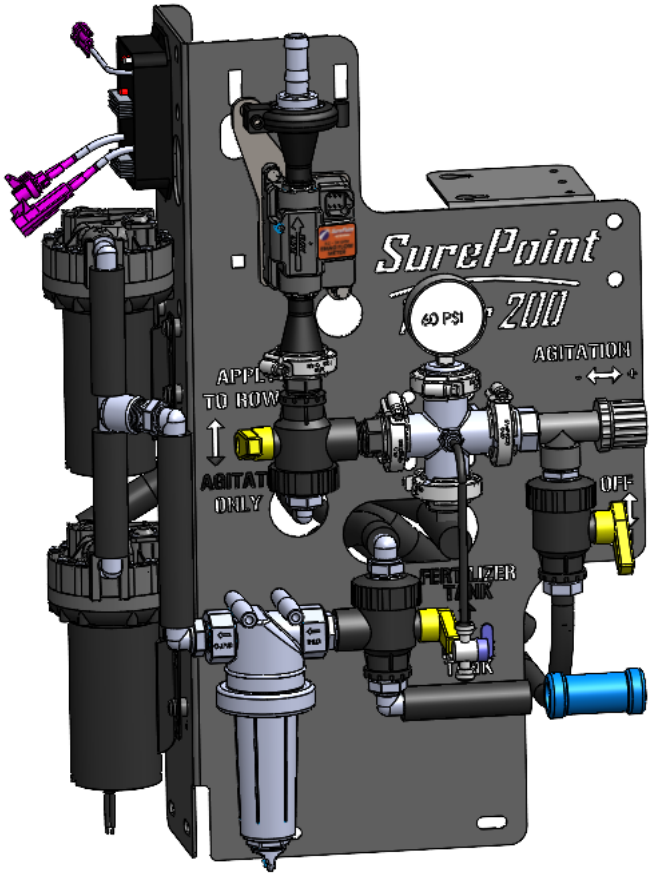
396-6661Y1

Tower 110 & 200, Orion 3 DN4 & DN10 Flowmeter Retrofit Kits Instructions







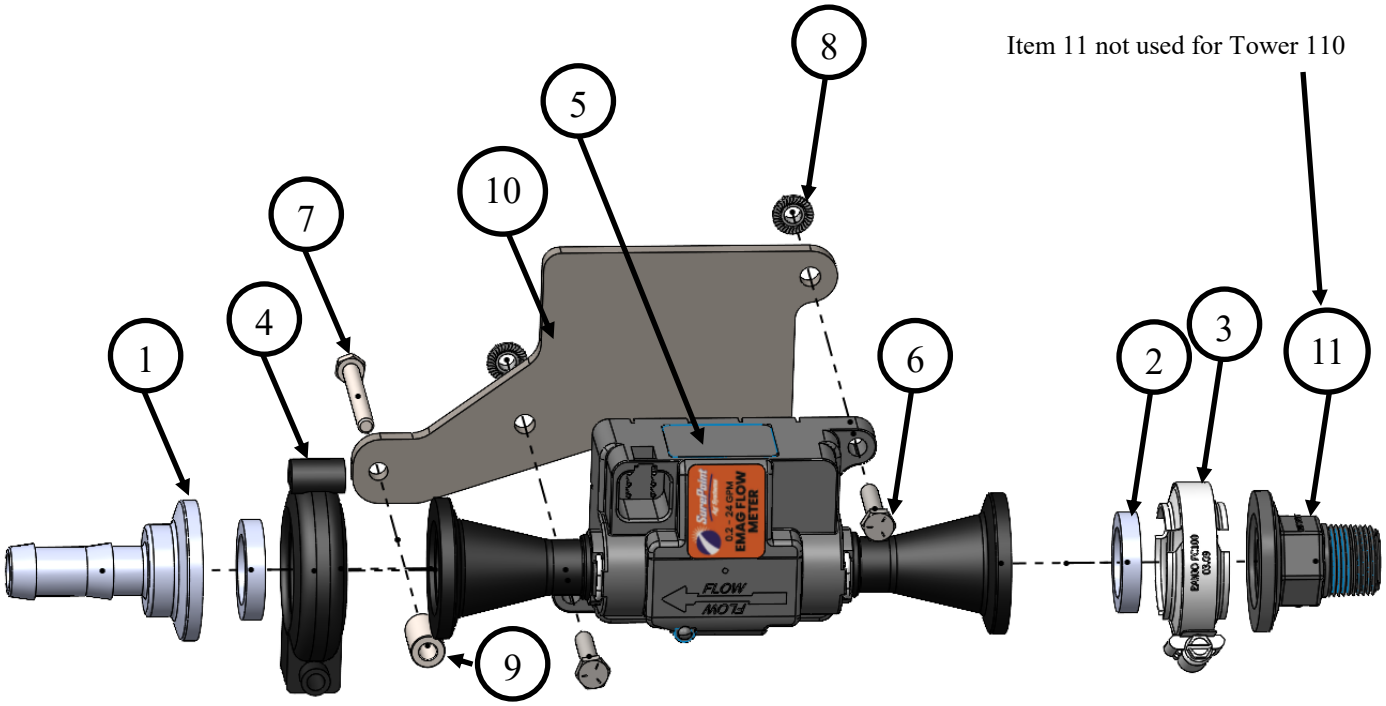
Kit Number:

511-01-DN10 : Retrofit Kit, Tower 110 &200 Orion 3 DN10, 0.2 - 24 GPM
511-01-DN4 : Retrofit Kit, Tower 110 Orion 3 DN4, 0.08-1.6 GPM

Parts List and Exploded View

511-01-DN10 — Retrofit Kit, Tower 110 & 200
Orion 3 DN10, 0.2 - 24 GPM

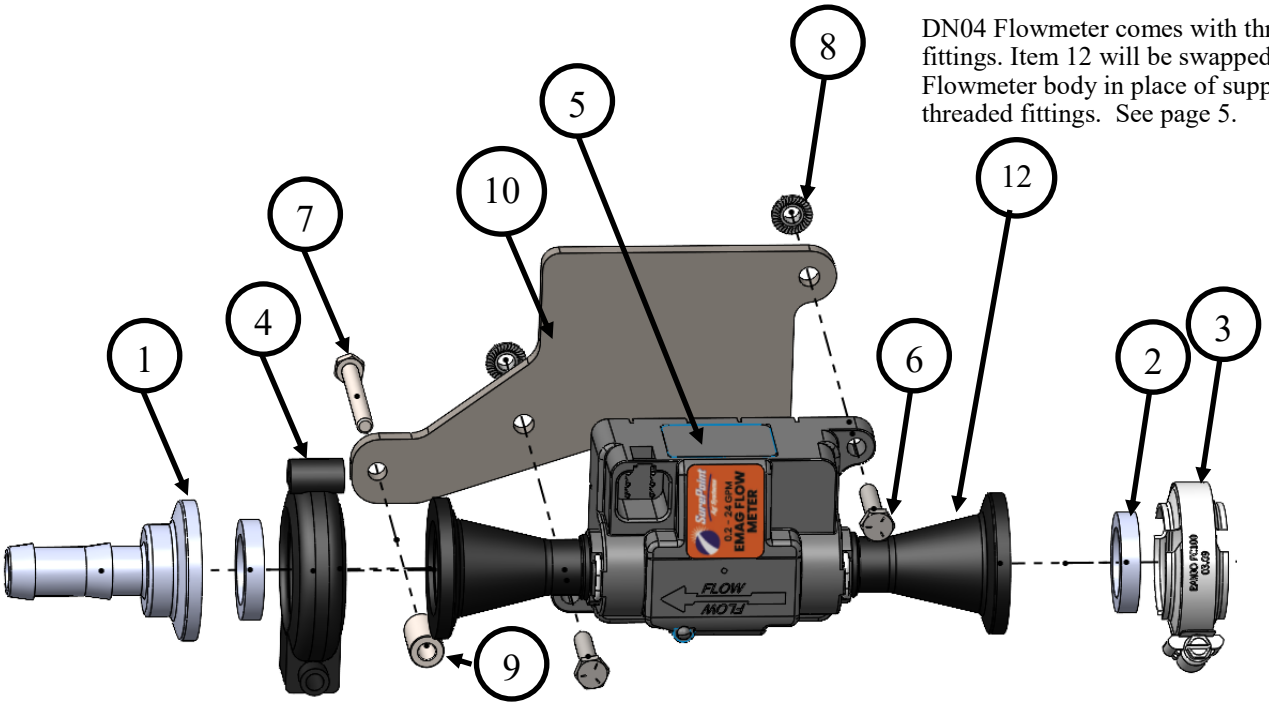
ITEM #	Part Number	Description	QTY
1	105-100075BRB	1" Manifold x 3/4" HB	1
2	105-100G-H	1" EPDM Manifold Gasket	2
3	105-FC100	1" Manifold Clamp	1
4	105-UFC100	1" UF Clamp	1
5	204-01-462032A-DN10	Flowmeter Assembly, Orion3 Emag, 0.2 - 24 GPM, M100 Flange	1
6	300-040108-SS	1/4" x 1-1/2" Hex Head Bolt - SS	2
7	300-M655MM-10.9	M6 x 55mm, Hex Flange Head Bolt - Grade 10.9	1
8	323-04-SS	1/4" Flange Nut -SS	2
9	400-6633Y1	Spacer Bushing, Steel 1/2"OD x 1/4" ID x 7/8" Long	1
10	410-6613Y1-BK	Spacer, Orion 3 Flowmeter With Tab for Tower	1
11	105-100075MPT	1" Manifold x 3/4" MPT	1



Parts List and Exploded View

511-01-DN4 — Retrofit Kit, Tower 110 Orion 3 DN4, 0.08-1.6 GPM

ITEM #	Part Number	Description	QTY
1	105-100075BRB	1" Manifold x 3/4" HB	1
2	105-100G-H	1" EPDM Manifold Gasket	2
3	105-FC100	1" Manifold Clamp	1
4	105-UFC100	1" UF Clamp	1
5	204-01-46203GA-DN04	Flowmeter Assembly, Orion3 Emag, 0.08 - 1.6 GPM, 1/2" MPT Connections	1
6	300-040108-SS	1/4" x 1-1/2" Hex Head Bolt - SS	2
7	300-M655MM-10.9	M6 x 55mm, Hex Flange Head Bolt - Grade 10.9	1
8	323-04-SS	1/4" Flange Nut -SS	2
9	400-6633Y1	Spacer Bushing, Steel 1/2"OD x 1/4" ID x 7/8" Long	1
10	410-6613Y1-BK	Spacer, Orion 3 Flowmeter With Tab for Tower	1
11	124-01-G11056-V	O-Ring, Viton, T1 Fork Fittings	2
12	120-M100T1M	M100 to T1 Flange for DN10 meter	2



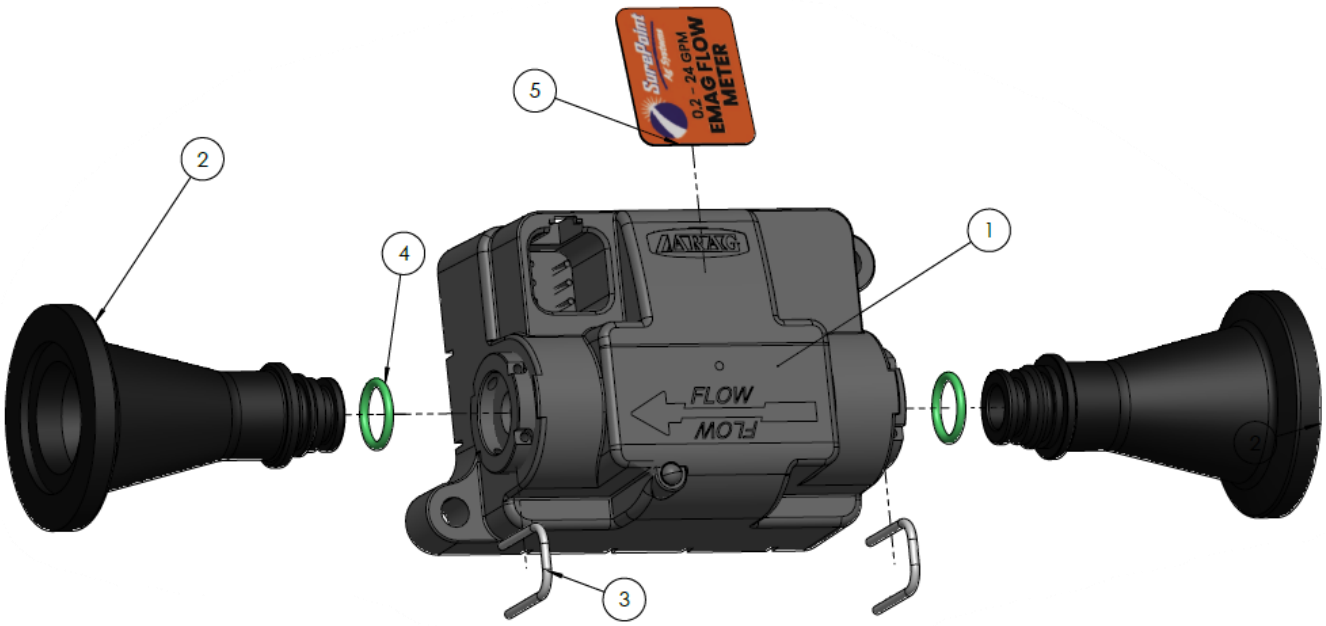
DN04 Flowmeter comes with threaded fittings. Item 12 will be swapped onto DN4 Flowmeter body in place of supplied threaded fittings. See page 5.

Parts List and Exploded View

204-01-462032A-DN10

Flowmeter Assembly, Orion3 Emag, 0.2 - 24 GPM, M100 Flange

ITEM #	Part Number	Description	QTY
1	204-01-462032	Flowmeter, Orion3 Emag, 0.2 - 24 GPM, T1F Connection	1
2	120-M100T1M	Flange Fitting, M100 x T1M Fork Fitting	2
3	124-02-010001	T1 Fork	2
4	124-01-G11056-V	Viton O-Ring for T1 Fittings	2
5	398-20-6313Y1	Decal, EMAG (Orion 3) Flowmeter 0.2—24 GPM	1

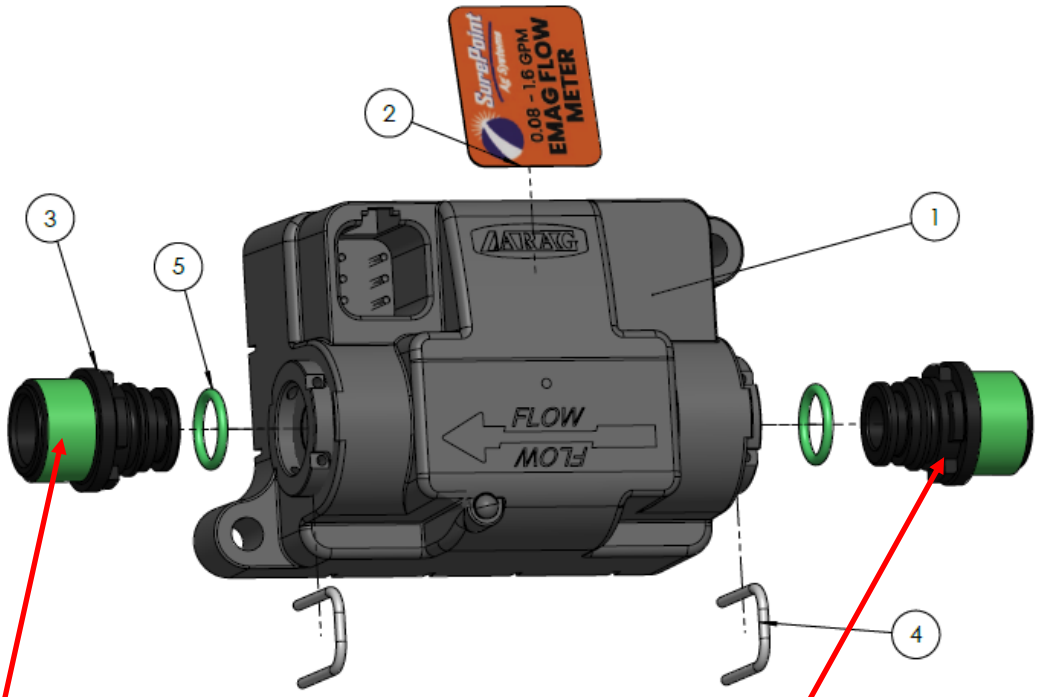


Parts List and Exploded View

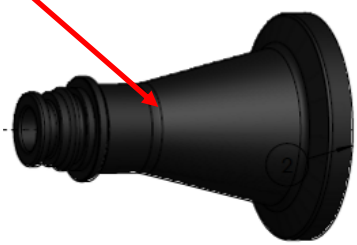
204-01-46203GA-DN04

Flowmeter Assembly, Orion3 Emag, 0.08 - 1.6 GPM, 1/2" MPT Connections

ITEM #	Part Number	Description	QTY
1	204-01-46203G	FLOWMETER, ORION3 EMAG, 0.08-1.6GPM, T1F CONNECTION	1
2	398-20-6312Y1	DECAL, EMAG (ORION3) FLOWMETER 0.08-1.6 GPM	1
3	120-T1M050MPT	FORKFITTING, T1M x 1/2" MPT	2
4	124-02-010001	T1 Fork	2
5	124-01-G11056-V	Viton O-Ring for T1 fittings	2



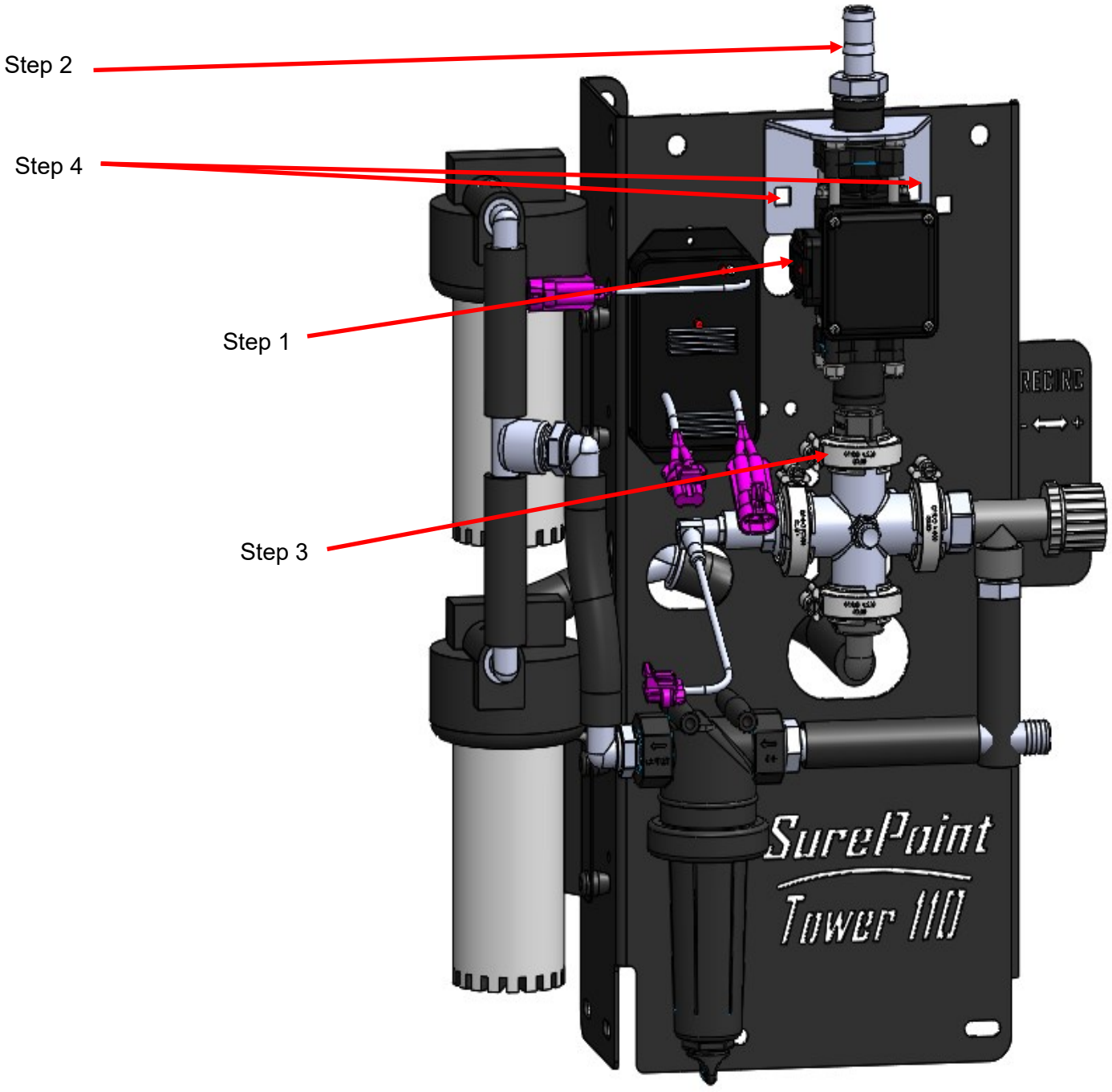
NOTE: For use in the Tower 110, Remove both 120-T1M050MPT from the flowmeter assembly and replace with two 120-M100T1M (supplied in kit 511-01-DN4)



120-M100T1M

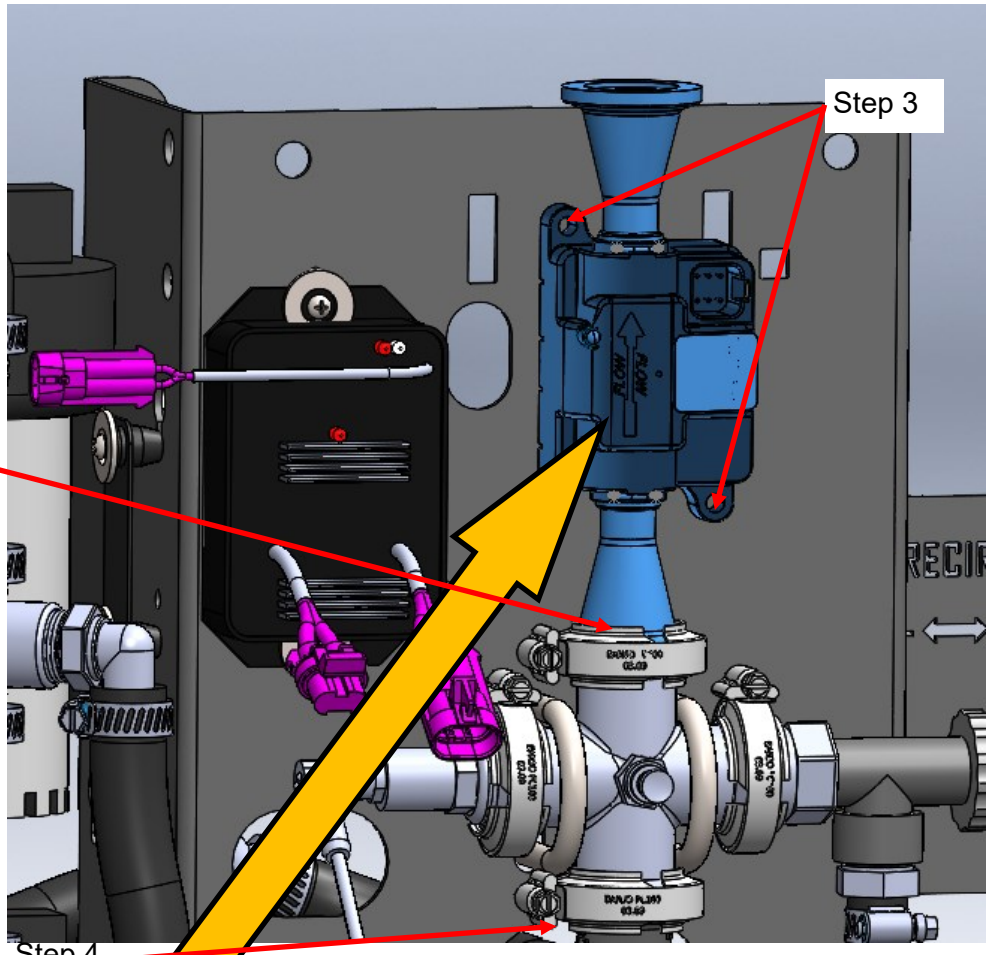
Step by Step Instructions
Tower 110 Old Flowmeter Removal

1. Disconnect harness from flowmeter electrical connection point.
2. Detach hose from flowmeter outlet. Hose and hose-clamp will be reused if possible.
3. Loosen 1” manifold clamp on flowmeter inlet flange fitting.
4. Remove 2x hex bolts holding flowmeter bracket to Tower frame.
5. Remove and discard flowmeter/bracket assembly.



Tower 110 Step by Step Instructions
Drill holes for new flowmeter

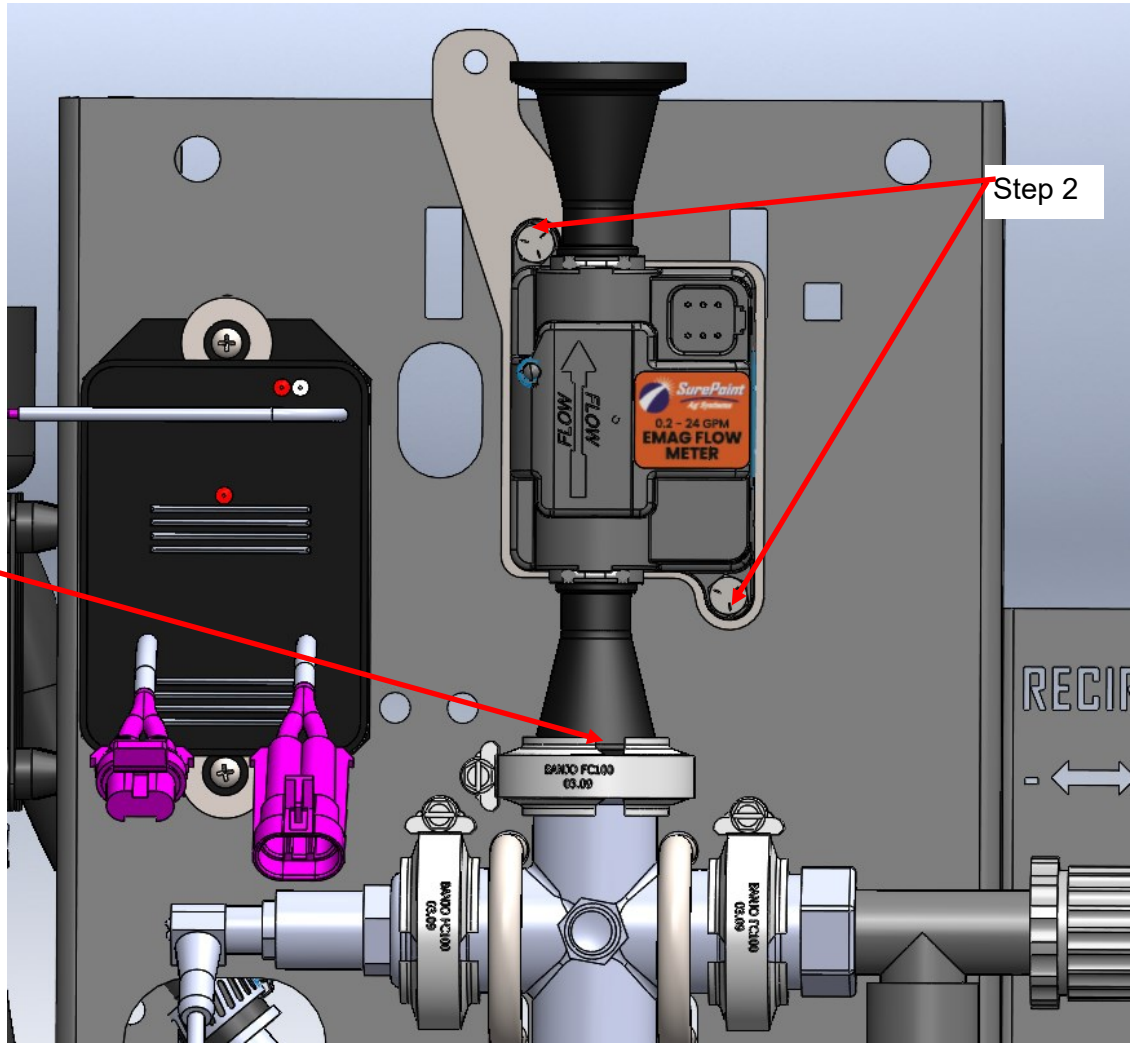
1. Loosely assemble new flowmeter assembly to 1” manifold flange previous installed in Step 1. In this step use only on a clamp 105-FC100 [1" Manifold Clamp]. A gasket is not necessary in this step. NOTE: Ensure flowmeter Flow Arrow is pointing up
2. Rotate Flowmeter so its back plane is parallel to Tower frame. Flowmeter back plane will be about 1/4” from tower frame.
3. Using the two flowmeter 1/4” bolt holes as a guide insert a center punch into both bolt holes and mark tower frame metal with the center point of each hole.
4. Loosen manifold clamp and remove Flowmeter Assembly and set aside for safety while drilling.
5. Drill 2x 1/4” holes in location marked in Step 3.



NOTE: Ensure Flowmeter Flow Arrow is Pointing UP.

Tower 110 Step by Step Instructions
Attach flowmeter to Tower Frame

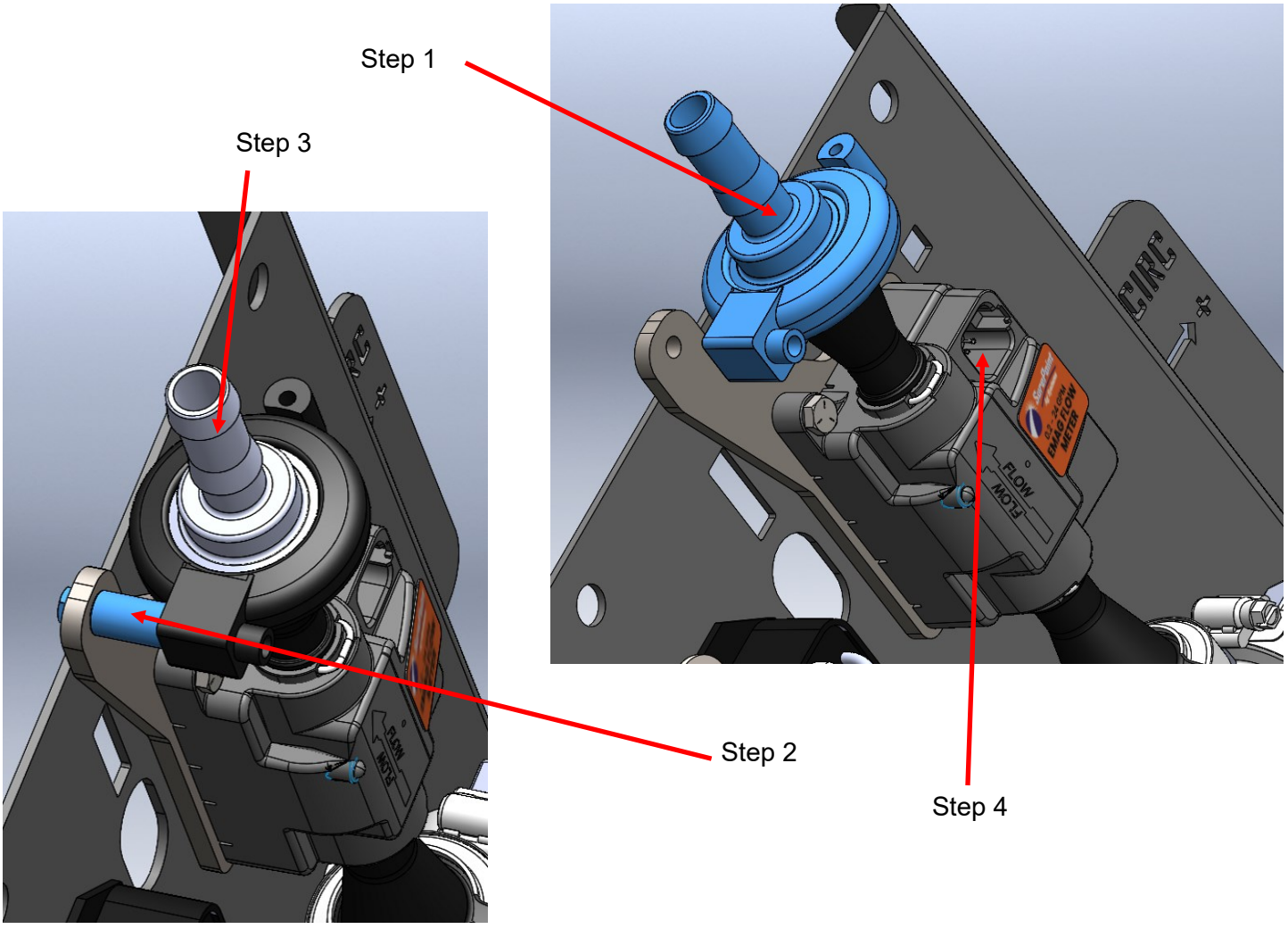
1. Loosely assembly flowmeter 204-01-462032A-DN10 to 1” manifold fitting on top of 3-way valve. Use gasket 105-100G-H and clamp 105-FC100. NOTE: Ensure flow meter flow arrow is point UP.
2. Slide metal spacer 410-6613Y1-BK between flowmeter back plane and tower frame. Loosely hold in place by inserting two hex bolts 300-040108-SS [1/4" x 1-1/2" Hex Head Bolt - SS] in flowmeter, spacer and frame bolt holes.
3. Fully tighten flowmeter inlet manifold clamp
4. Use two Hex Nuts 323-04-SS [1/4" Flange Nut -SS], on Hex bolts from Step 2 to secure flowmeter, and spacer plate to tower frame.



NOTE: Ensure Flowmeter Flow Arrow is Pointing UP.

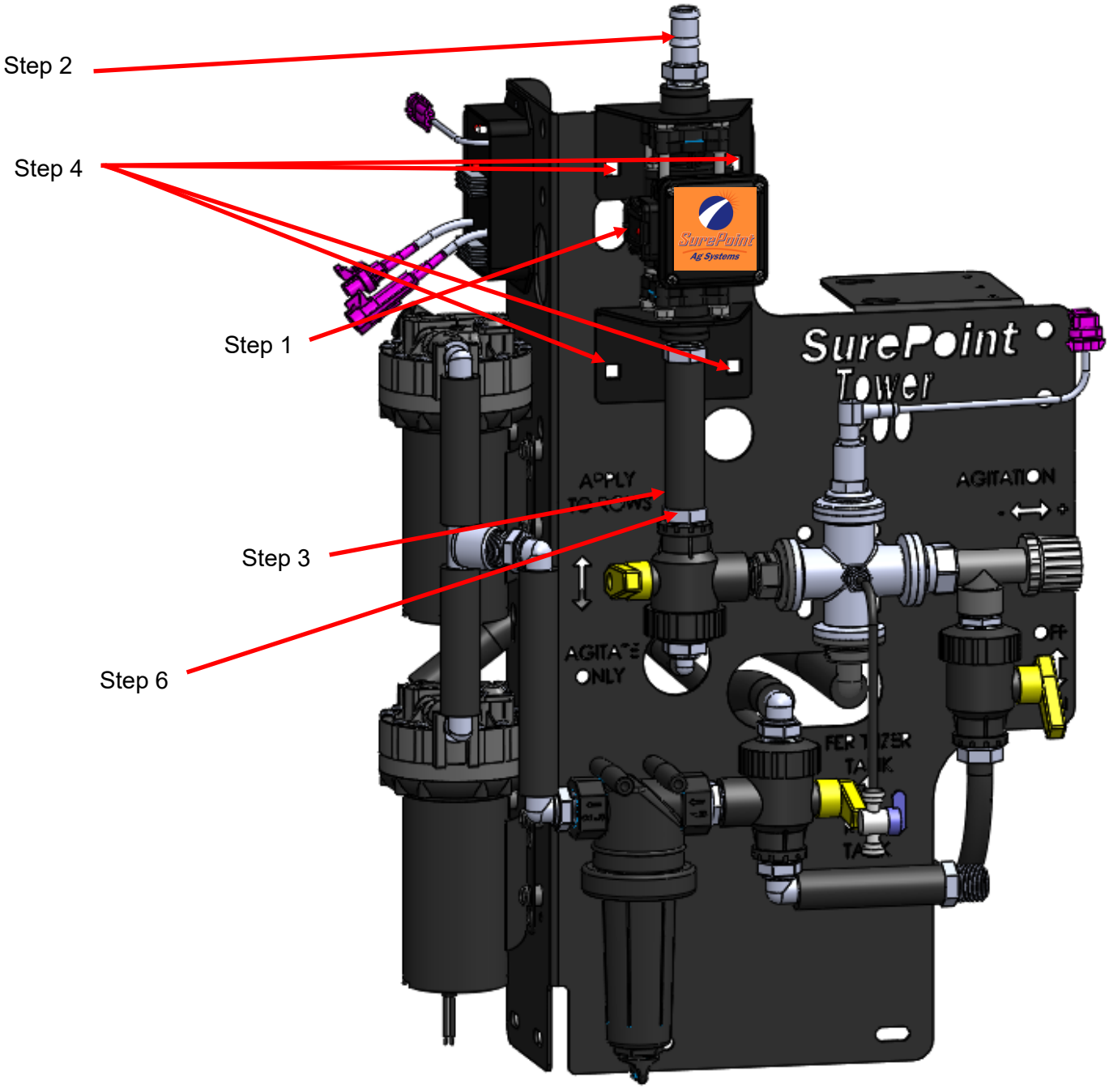
Tower 110 Step by Step Instructions
Attach Hose barb to Flowmeter Outlet

1. Position 1” gasket [105-100G-H — 1" EPDM Manifold Gasket], and 3/4” hose barb fitting [105-100075BRB — 1" Manifold x 3/4" HB] on the flowmeters outlet flange (top), loosely secure with clam shell clamp [105-UFC100 — 1" UF Clamp] . Clamshell orientation is important; —captured nut in clamp should be on “left” side of pipe axis and capture nut half of the clamshell should be “away” from the bracket metal.
2. Using M6 x 55mm hex bolt [300-M655MM-SS — M6 x 55mm, Hex Flange Head Bolt - SS] and 7/8” Spacer Bushing [400-6633Y1 — Spacer Bushing, Steel 1/2"OD x 1/4" ID x 7/8" Long], secure clamshell clamp to bracket through top hole. This connection will also clamp and seal the 1” manifold connection to the hose barb fitting.
3. Reattach flowmeter outlet hose to flowmeter hose barb using hose clamp.
4. Using supplied harness adapter connect “flowmeter-labeled” harness lead to 6-pin connection point on new flowmeter.
5. Update flowmeter calibration number in controller settings (see last page).



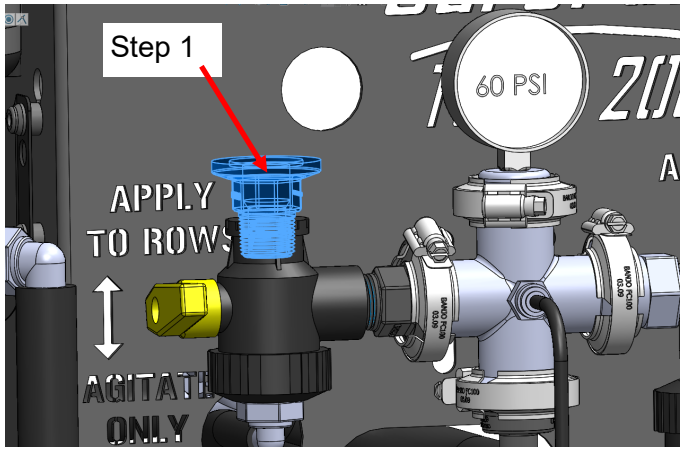
Step by Step Instructions
Tower 200 Old Flowmeter Removal

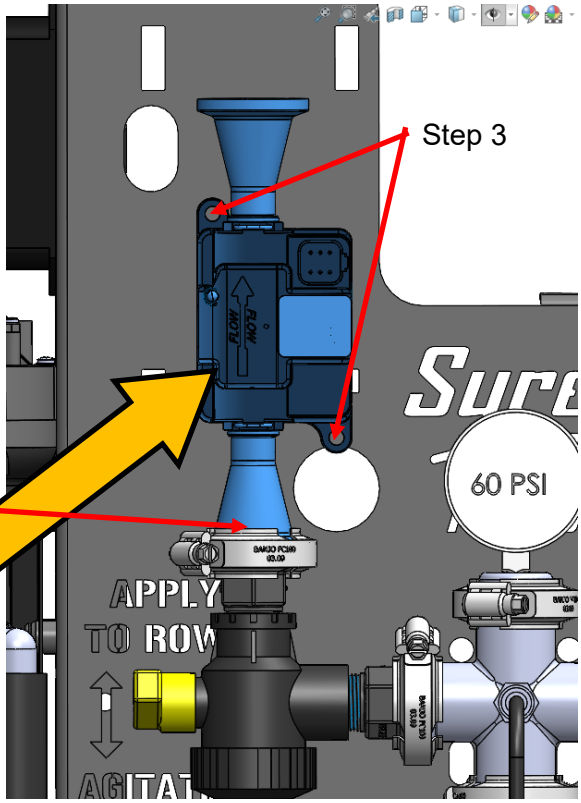
1. Disconnect harness from flowmeter electrical connection point.
2. Detach hose from flowmeter outlet. Hose and hose-clamp will be reused if possible.
3. Loosen hose clamp on bottom of flowmeter inlet hose.
4. Remove 4x hex bolts holding flowmeter bracket to Tower frame.
5. Remove and discard flowmeter/bracket assembly.
6. Unscrew hose barb fitting from top of 3-Way valve and discard



Tower 200 Step by Step Instructions
Drill holes for new flowmeter

1. Screw new fitting 105-100075MPT [1" Manifold x 3/4" MPT] into top of 3-way valve and tighten. (Thread tape and/or thread sealant is recommended)
2. Loosely assemble new flowmeter assembly to 1” manifold flange previous installed in Step 1. In this step use only on a clamp 105-FC100 [1" Manifold Clamp]. A gasket is not necessary in this step. NOTE: Ensure flowmeter Flow Arrow is pointing up
3. Rotate Flowmeter so its back plane is parallel to Tower frame. Flowmeter back plane will be about 1/4” from tower frame.
4. Using the two flowmeter 1/4” bolt holes as a guide, insert a center punch into both bolt holes and mark tower frame metal with the center point of each bolt hole.
5. Loosen manifold clamp and remove flowmeter assembly and set aside for safety while drilling.
6. Drill 2x 1/4” holes in locations marked in Step 4.

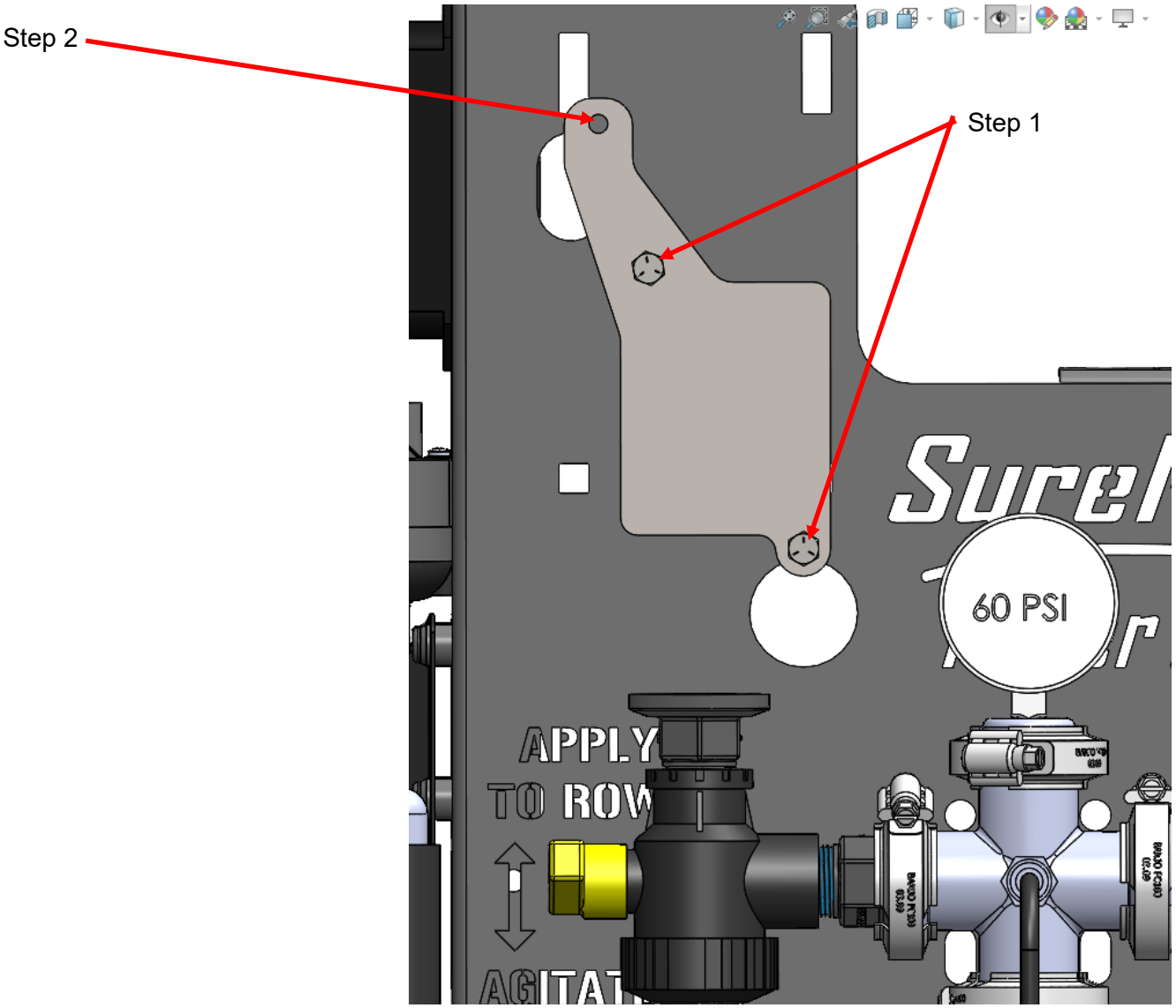




NOTE: Ensure Flowmeter Flow Arrow is Pointing UP.

Tower 200 Step by Step Instructions
Drill 3rd hole for new flowmeter

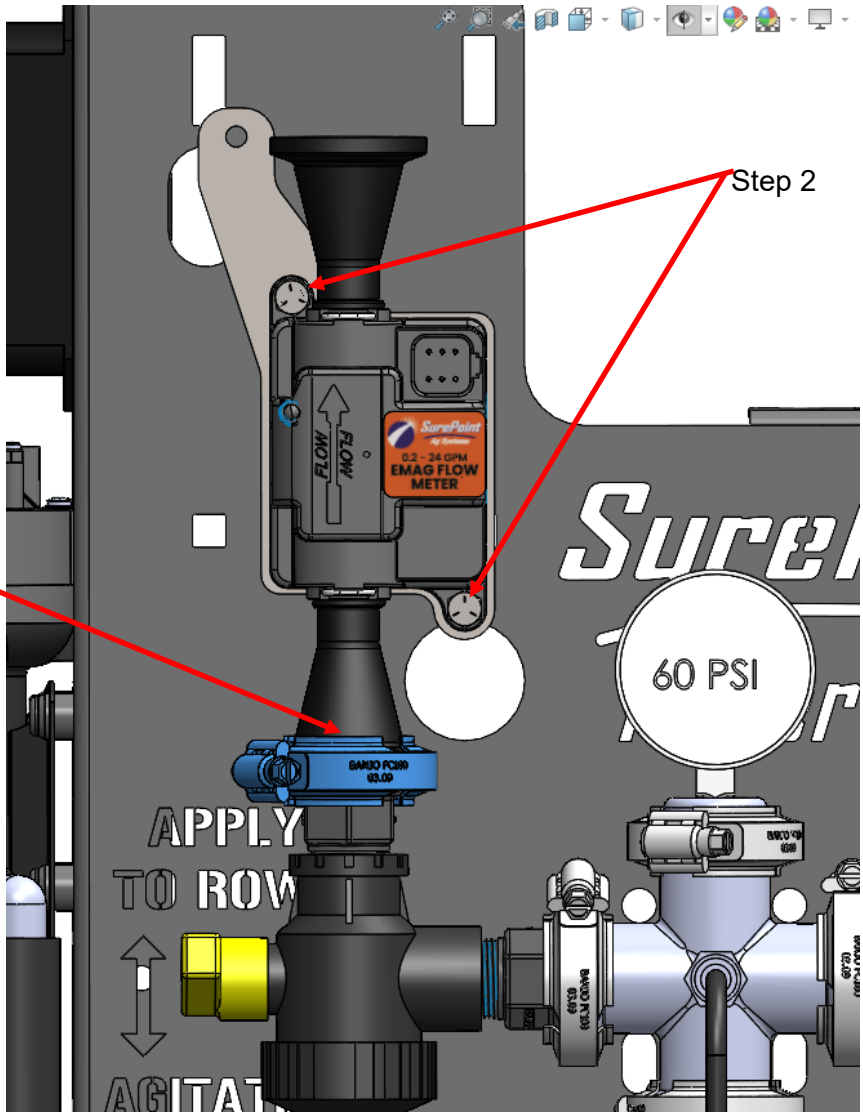
1. Using two new holes just drilled on previous page, attach metal spacer 410-6613Y1-BK [Spacer, Orion 3 Flowmeter With Tab for Tower]. Use 2x 1/4” hex bolts and nuts. Only finger tighten in this step.
2. Use supplied metal spacer 410-6613Y1-BK as a drilling guide and drill 1/4” hole in the Tower frame in the location of the top (3rd) hole in the spacer bracket
3. Remove 2x 1/4” hex bolts and nuts from step 1
4. Frame is now ready to attach new flowmeter



Tower 200 Step by Step Instructions
Attach flowmeter to Tower Frame

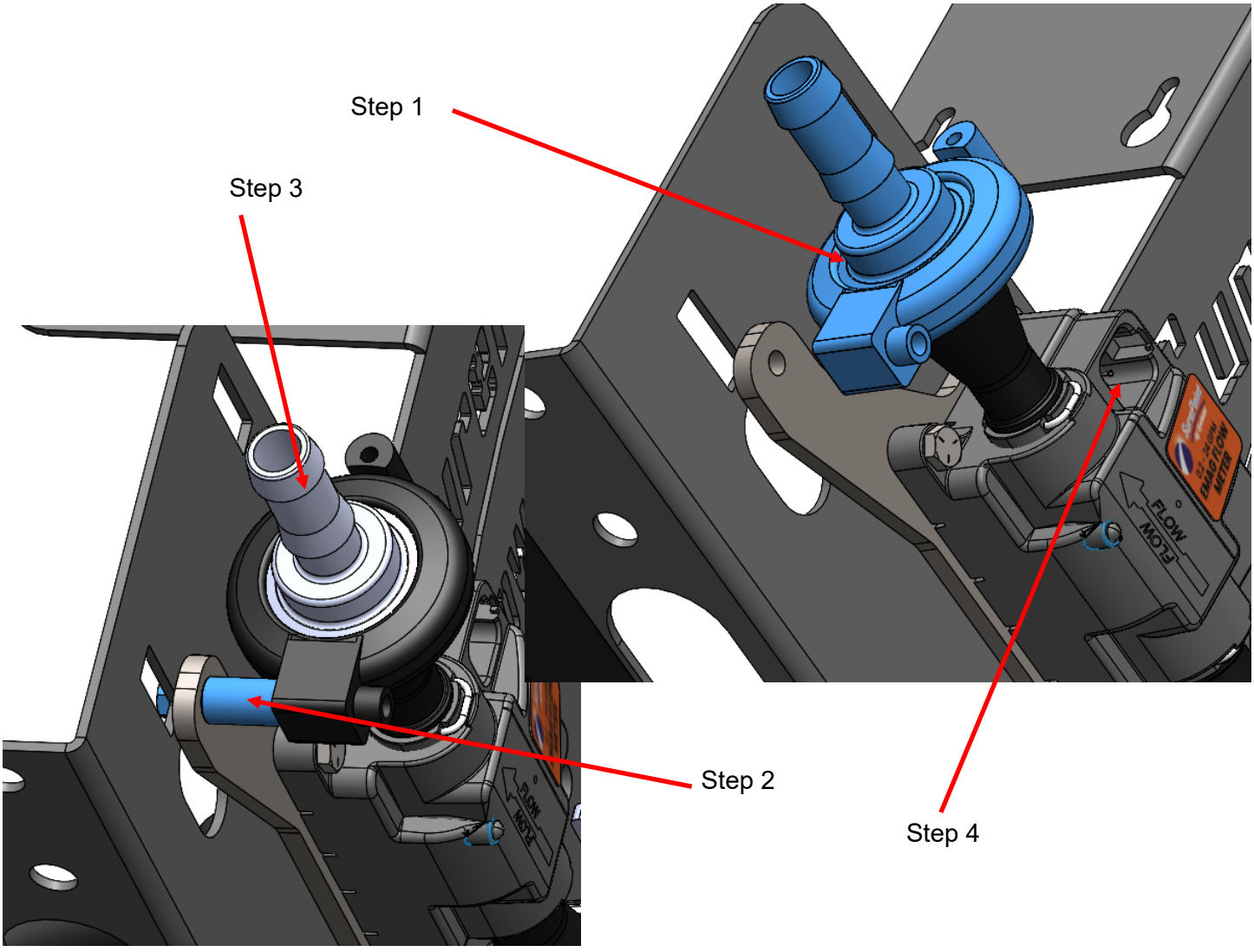
1. Loosely assembly flowmeter 204-01-462032A-DN10 to 1” manifold fitting on top of 3-way valve. Use gasket 105-100G-H and clamp 105-FC100. NOTE: Ensure flow meter flow arrow is point UP.
2. Slide metal spacer 410-6613Y1-BK between flowmeter back plane and tower frame. Loosely hold in place by inserting two hex bolts 300-040108-SS [1/4" x 1-1/2" Hex Head Bolt - SS] in flowmeter, spacer and frame bolt holes.
3. Fully tighten flowmeter inlet manifold clamp
4. Use two Hex Nuts 323-04-SS [1/4" Flange Nut -SS], on Hex bolts from Step 2 to secure flowmeter, and spacer plate to tower frame.

NOTE: Ensure Flowmeter Flow Arrow is Pointing UP.



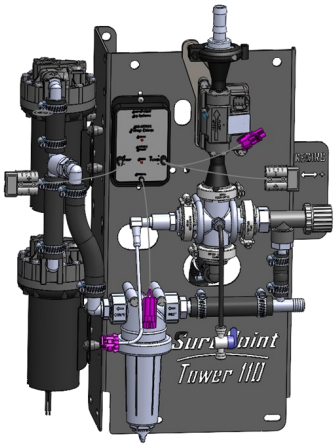
Tower 200 Step by Step Instructions
Attach Hose barb to Flowmeter Outlet

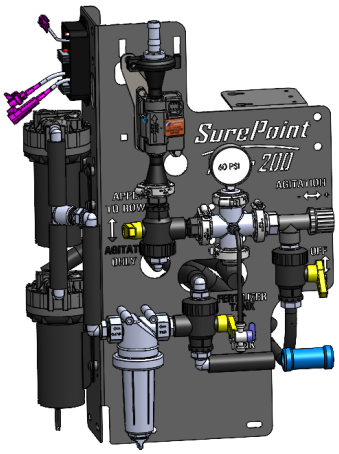
1. Position 1” gasket [105-100G-H — 1" EPDM Manifold Gasket], and 3/4” hose barb fitting [105-100075BRB — 1" Manifold x 3/4" HB] on the flowmeters outlet flange (top), loosely secure with clam shell clamp [105-UFC100 — 1" UF Clamp] . Clamshell orientation is important; —captured nut in clamp should be on “left” side of pipe axis and capture nut half of the clamshell should be “away” from the bracket metal.
2. Using M6 x 55mm hex bolt [300-M655MM-SS — M6 x 55mm, Hex Flange Head Bolt - SS] and 7/8” Spacer Bushing [400-6633Y1 — Spacer Bushing, Steel 1/2"OD x 1/4" ID x 7/8" Long], secure clamshell clamp to bracket and tower frame through top hole. This connection will also clamp and seal the 1” manifold connection to the hose barb fitting.
3. Reattach flowmeter outlet hose to flowmeter hose barb using hose clamp.
4. Using supplied harness adapter connect “flowmeter-labeled” harness lead to 6-pin connection point on new flowmeter.
5. Update flowmeter calibration number in controller settings (see last page).



Tower 110 & 200 Emag Flowmeter Update Part Info Sheet

0.2 - 24 GPM Orion 3 DN10 Emag Flowmeter P/N *204-01-462032A-DN10*
0.08-1.6 GPM Orion 3 DN4 Emag Flowmeter P/N *204-01-46203GA-DN4*





6-Pin Deutsch connector

Use adapter 201-5954Y1 to connect to 3-pin AMP Superseal harness.

OR Alternate adapter 201-6647Y1 to connect to 3-pin MP Shroud

For 0.08-1.6 (DN4) flowmeter you may also need one of these three di-vide-by-8 cables for controllers that CANNOT handle a 5-digit calibration number.:

201-14266 (for multiple controllers)

201-17842 (for multiple controllers)

201-19849 (for Case ECU controller)

Controller- Flow Cals are listed in Pulses per Gallon unless noted	DN10 .2-24 GPM Flow Cal Number	**DN10 .2-24 GPM Flow Cal Number with Divide by 8 Cable**	DN4 .08-1.6 GPM Flow Cal Number	**DN4 .08-1.6 GPM Flow Cal Number with Divide by 8 Cable**
Sentinel	4542	568	37854	4732
Commander	Requires Divide by 8 Cable	1136	N/A	N/A
Commander II	9084	1136	75708	9464
John Deere	4542	568	37854	4732
Ag Leader	4542	568	37854	4732
Trimble	4542	568	37854	4732
Raven	4542	568	37854	4732
Topcon	4542	568	37854	4732
Case (ECU) Pulses per 10 Liters	Requires Divide by 8 Cable	1499	N/A	N/A
Case (UCM) Pulses per Liter	1199	150	9993	1249

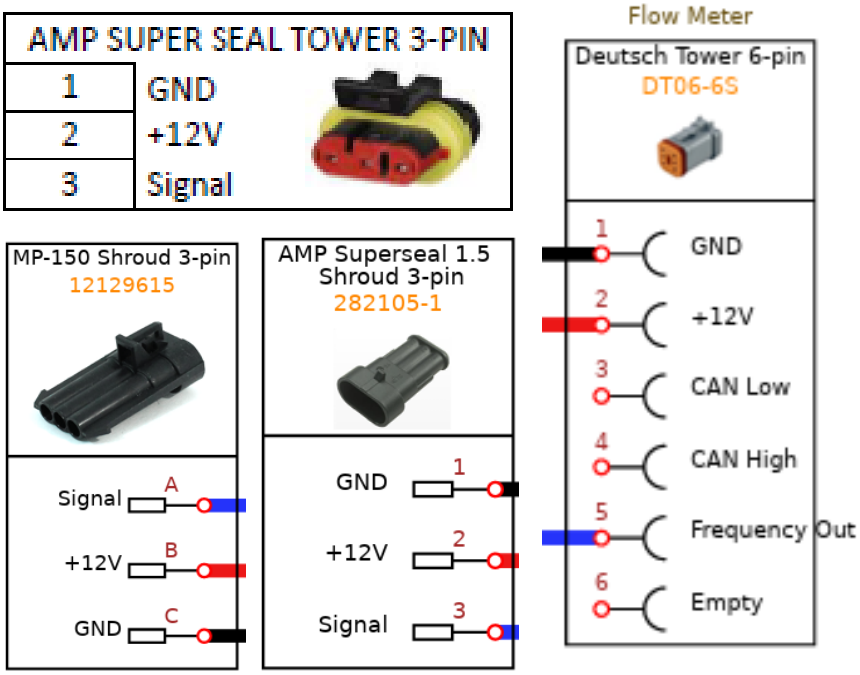
Orion 3 Flowmeter will need to adapt from the 6-Pin Deutsch to the flowmeter plug on the harness. These adapters are listed on page 2.

The "Divide by 8" adapter harness must be used in applications where the controller will not accept the required flow cal number. The "Divide by 8" adapters listed on the next page could be on your system and will need to use the above flow cal number associated with your controller.

Tower 110 & 200 Emag Flowmeter Update Part Info Sheet

0.2 - 24 GPM Orion 3 DN10 Emag Flowmeter P/N *204-01-462032A-DN10*
0.08-1.6 GPM Orion 3 DN4 Emag Flowmeter P/N *204-01-46203GA-DN4*

Adapter Part Number	Description	Uses
201-5954Y1	3-Pin AMP Superseal Shroud to 6-Pin Deutsch Tower	Pump final cable to Orion 3 Flowmeter
201-6647Y1	3-Pin MP Shroud to 6-Pin Deutsch Tower	Pump final cable to Orion 3 Flowmeter used on Commander II and E-Mag Flowmeter with Blue Sticker and White Lettering.
Divide by 8 Adapters	**The "Divide by 8" adapter harness must be used in applications where the controller will not accept the required flow cal number.**	**Could be on your existing system and will need to use correct flow cal from chart on previous page.**
201-14226	3-Pin MP Shroud to 3-Pin MP Tower with divide by 8	Multiple Controllers
201-17842	3-Pin MP Shroud to 3-Pin AMP Superseal Tower with divide by 8	Multiple Controllers
201-19849	3-Pin AMP Superseal Shroud to 3-Pin AMP Superseal Tower with divide by 8	Used commonly with Case Planter with ECU



Adapter Harness Connections Shown to the Left.

201-14226 -Shown with divide by 8 module circled.

SurePoint recommends you perform a catch test to verify the system is properly installed and configured. Adjust the flow cal as needed based on accurate catch tests with the actual product or

Warning!!!

-Before doing any welding on the implement, unplug the cable to the flowmeter, or damage to the flowmeter may result.

-Do not power wash the flowmeter. High pressure spray directed at the back edge of the face plate or at the wire connector may allow water into the flowmeter electronics.