Mount the units

Note: *To maintain the integrity of the NEMA rated enclosure, seal empty knockouts or through holes using NEMA approved strain reliefs and hole plugs (**Parts and accessories on page 22**).*

Mount the regulator and/or junction box enclosures near a 920, 930 or 950 flow meter or a 900 MAX or SD900 sampler. The enclosures are rated NEMA 4X (IP66) and designed to mount easily to a wall, pole or panel. Allow at least one inch (25.4 mm) of clearance on the top sides and a minimum of six inches (152.4 mm) on the bottom. Disassembly is not required for pole or wall mounting, and minimal disassembly is required for panel mounting.

A mounting bracket is supplied for securing the enclosure to a horizontal or vertical pole (or similar structure) or to a wall. The pole must have an outside diameter of ¾ inch (19.05 mm) to 2 inches (50.8 mm) and must be capable of supporting at least five pounds (2.268 kg).

Make sure all necessary knockouts are removed before mounting the junction box.

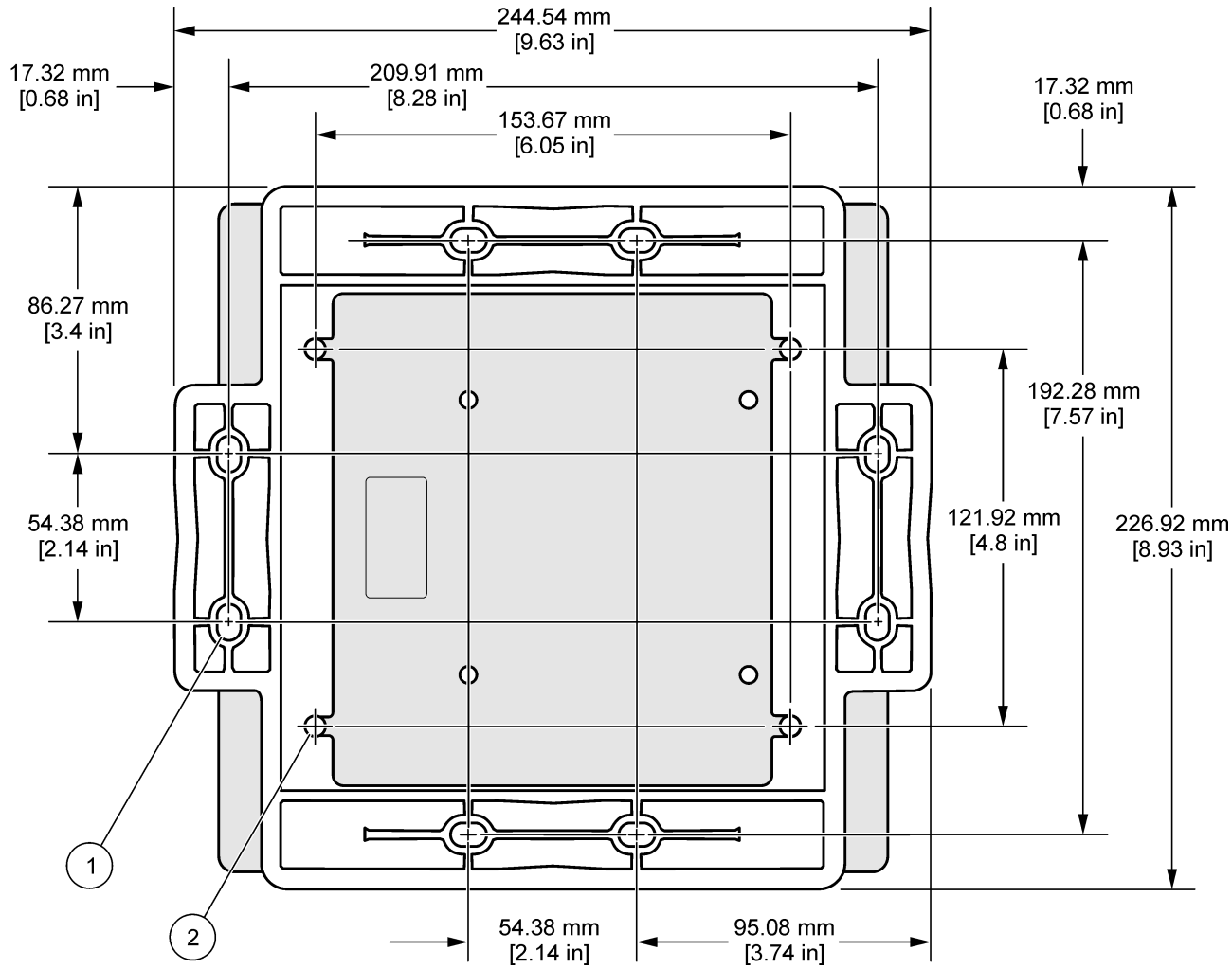

Figure 1 Mounting bracket dimensions

1	Slot for ¼-inch fastener (8x) (pole or wall mounting)	**2**	Slot for #10-32 screw (4x) (install bracket to junction box)

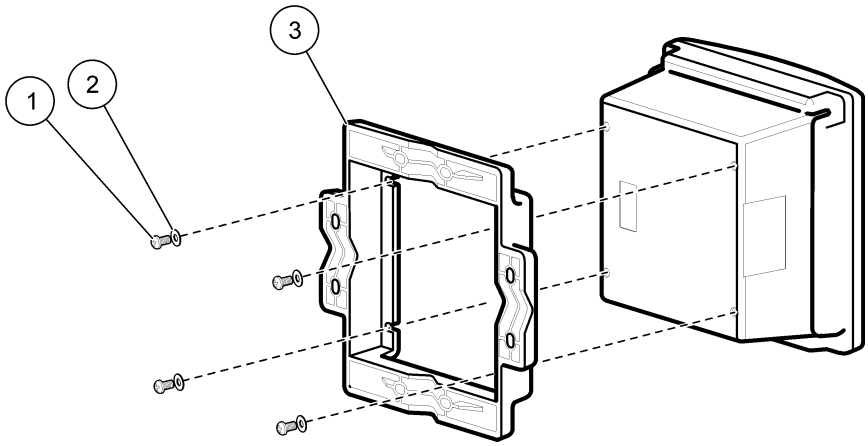

Figure 2 Install bracket

1	Screw, #10-32 (4x)	**3**	Mounting bracket
2	Washer, flat (4x)		

Pole Mount

1. Obtain two ¼–20 x 2.843 U-bolts and nuts (Parts and accessories on page 22).
2. Remove knock-outs if necessary.

Important Note: *Do not remove knock-outs that are not needed for wiring entry.*

3. Press the back of the mounting bracket against a pole in the proper mounting position, either vertically or horizontally.
4. Place the curve of one U-bolt behind the pole, and insert the threaded ends of the bolt through two of the center holes on the mounting bracket (Figure 3).
5. Secure the two nuts with a wrench, and repeat steps 1 and 4 on the opposite side of the bracket.

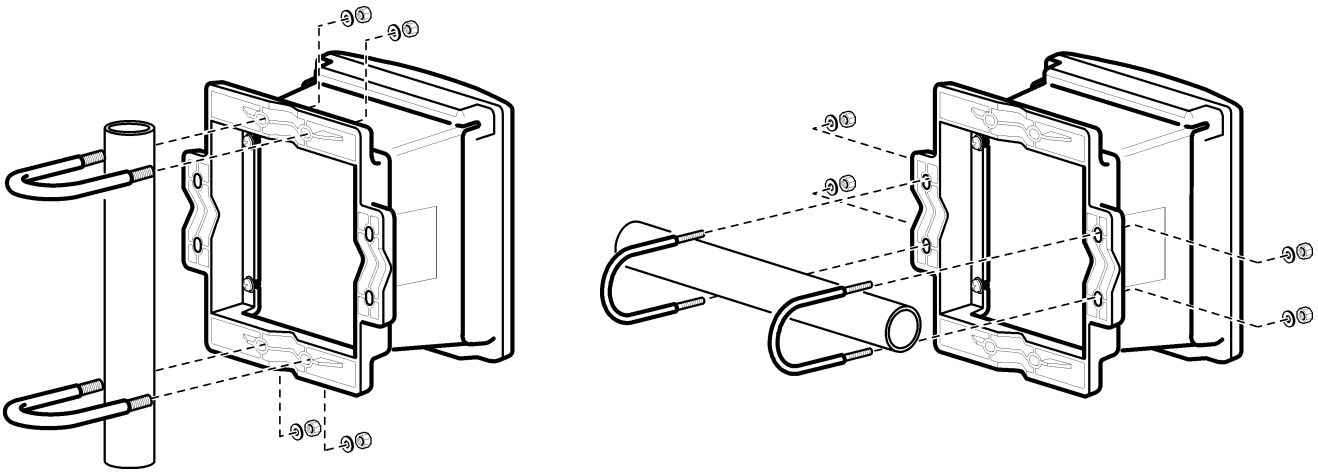

Figure 3 Pole mounting

Wall Mount

1. Remove knock-outs if necessary.
2. Remove the mounting bracket from the back of the enclosure.
3. Use the bracket as a template or use the dimensions shown in Figure 1 on page 1 to mark positions on the wall for four of the eight screw holes.
4. Reconnect the mounting bracket to the device if necessary (Figure 2 on page 2).
5. Drill pilot holes in the marked positions for four ¼-inch screws.
6. Use four ¼-inch, hex-head or pan-head screws to secure the bracket and device to the wall.

Panel Mount

1. Remove knock-outs if necessary.

Important Note: *Do not remove knock-outs that are not needed for wiring entry.*

2. Use a Phillips screwdriver to remove the four screws holding the mounting bracket onto the back of the junction box. The wall mount bracket is not needed for panel mounting.
3. Use a flat-blade screwdriver to loosen the screws on the enclosure face.
4. Lift the face off the junction box and set it aside.
5. Measure the panel hole using the dimension information given in Figure 4 on page 4. Mark the panel for placement of three #10 pan-head screws.
6. Cut out the panel hole and drill three pilot holes for the screws (Figure 5 on page 5).
7. Fit the enclosure into the panel hole and secure it with three #10 pan-head screws.
8. Make sure that the gasket is properly seated in the enclosure cover and tighten the screws (10 in-lb (1.1 n-m) maximum). Do not overtighten the screws.

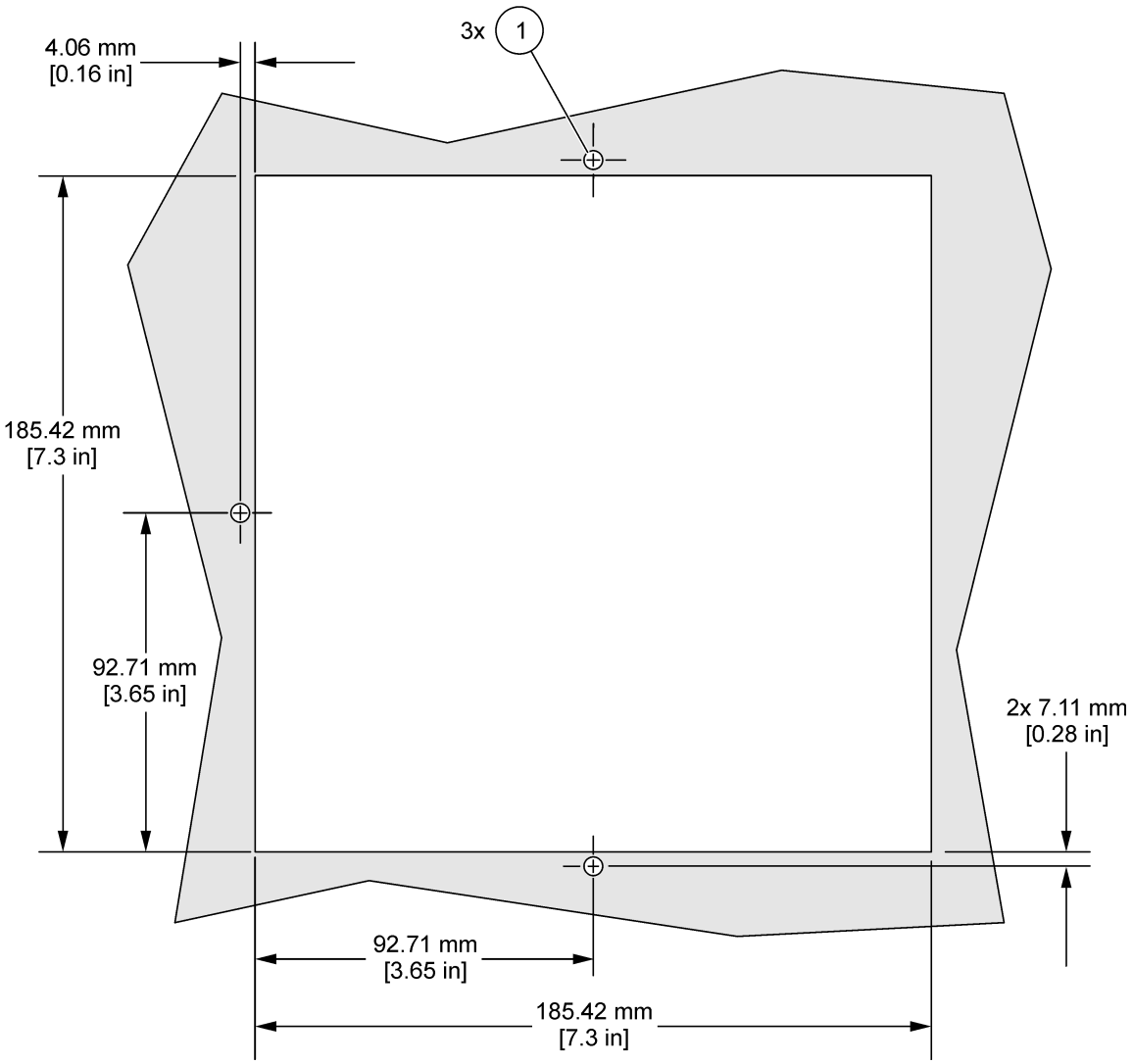

Figure 4 Panel mount dimensions (For reference only, not to scale)

1	Pilot hole for #10 screw (3x)

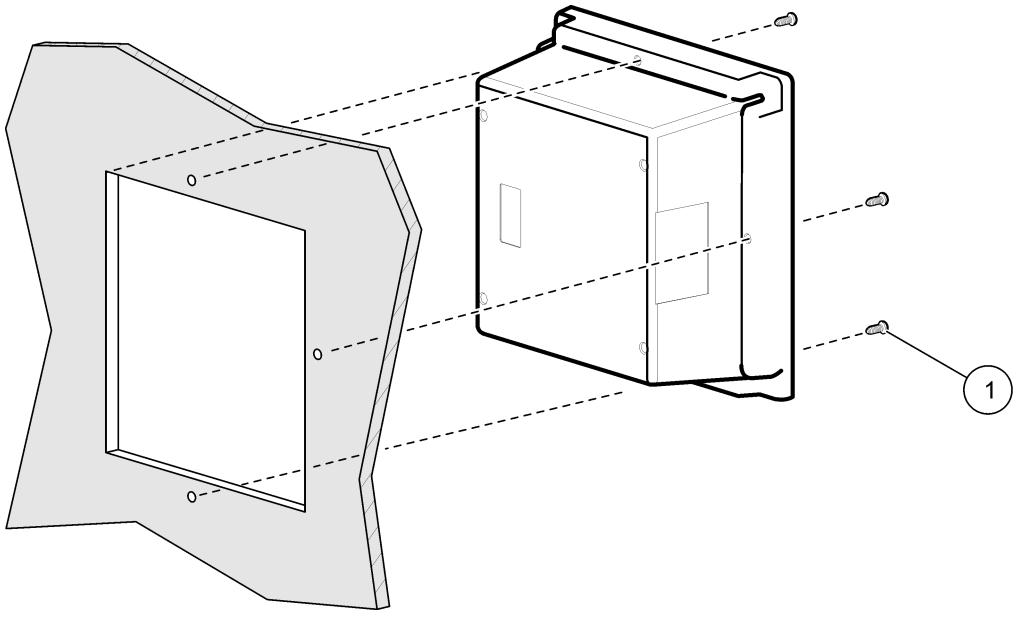

Figure 5 Panel mounting

1	#10 Screw, pan head (3x)

Mount the solar panel

Refer to the manufacturer’s guidelines for solar panel installation and mounting instructions.

Wire the solar panel to the regulator

1. Attach two spade connectors (Parts and accessories on page 22) to the bare leads of the 15 ft. (4.572 m) cable attached to the solar panel.
2. Feed the cable through the strain relief fitting located on the bottom of the regulator.
3. Connect to the screw terminals as shown in Figure 6 on page 6.

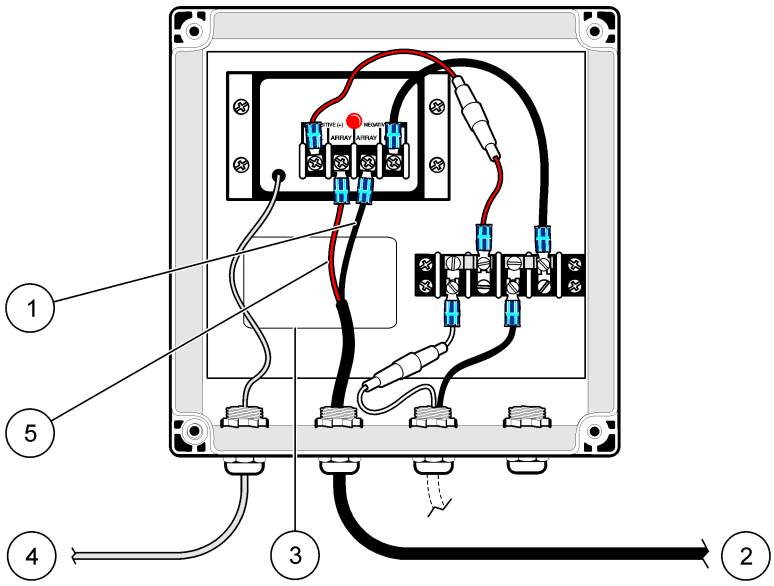

Figure 6 Wire the solar panel to the regulator

1	Black wire (–), negative	**4**	To thermal protection sensor
2	To solar panel	**5**	Red wire (+), positive
3	Fuse information and wiring label		

Set up a 950 flow meter (only)

Warning

Potential explosion hazard. The 1414 and other deep cycle batteries (if enclosed or housed) must be housed in a ventilated enclosure to make sure that combustible gases that occur during charging operations are released.

The table below lists the cables used to set up a 950 Flow Meter (only). Refer to Parts and accessories on page 22 for cable ordering information.

Cable	Description
1414 regulator to battery (8710700)	Strain relief and a two-conductor wire with spade terminals on one end and a connector on the other end.
Regulator to deep cycle battery (8710900)	Strain relief and a two-conductor wire with spade terminals on one end and ring lugs on the other end.
Flow meter to regulator (8710600)	Strain relief fitting and a two-conductor wire with spade terminals on one end and a connector on the other end.

1. Open the regulator enclosure.
2. Wire the solar panel unit to the regulator, refer to Figure 6.

Note: *Positive wires are red or white and negative wires are black. Always connect wires to the properly labeled polarity.*

3. Connect the flow meter cable connector to the 950 flow meter.
4. Remove the plug from the fourth hole in the regulator enclosure.
5. Remove the nut from the flow meter cable strain relief and feed the cable through the fourth hole on the regulator. Thread the nut over the wires and tighten to secure. Connect the spade terminals to the screw terminals as shown in Figure 7 on page 8.
6. Attach the pre-wired Thermal Protection Sensor to the side of the battery source (1414 deep cycle battery or customer-supplied deep cycle battery) with the supplied adhesive-backed foam tape. The Thermal Protection Sensor continually controls the battery temperature and charge threshold and shuts down the regulator in the event of overheating.

Note: *Do not attach the thermal protection sensor to damaged batteries. Refer to Battery Replacement on page 21 for more information.*

7. Remove the nut on the battery cable strain relief and feed the battery cable through the third hole on the regulator. Thread the nut over the wires and tighten to secure. Connect spade terminals to the screw terminals. Refer to Figure 7 on page 8.
8. Connect the appropriate end of the battery cable to the appropriate battery type. Figure 7 on page 8 shows a 950 flow meter with a 1414 battery.
9. Locate the two fuse holders and unscrew to open. Place an 8 amp, 125 V, 5 x 20 mm fuse (Parts and accessories on page 22) into each holder and screw the holders back together.
10. Close the regulator enclosure with the gasket and cover properly seated and tighten all strain relief fittings.

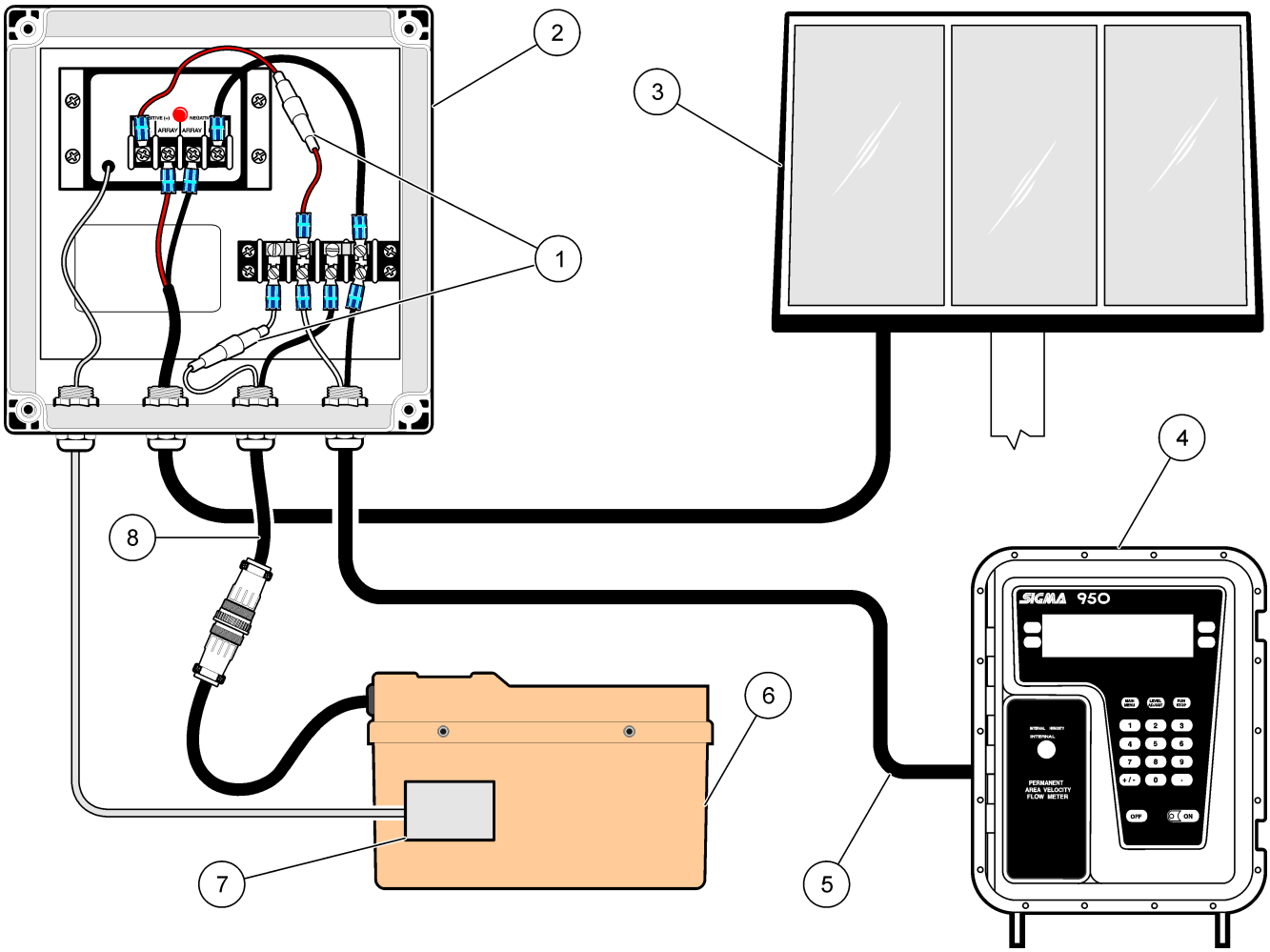

Figure 7 Set up a 950 flow meter with a gel battery

1	Fuse holders	**5**	Cable (8710600)
2	Regulator [1]	**6**	Deep cycle battery (1414)
3	Solar panel	**7**	Thermal protection sensor
4	950 flow meter	**8**	Cable (8710700)

[1] Red and white wires to positive. Black wires to negative.

Set up a 900 MAX or SD900 portable sampler (only)

Warning

Potential explosion hazard. The 1414 and other deep cycle batteries (if enclosed or housed) must be housed in a ventilated enclosure to make sure that combustible gases that occur during charging operations are released.

The table below lists the cables used to set up a 900 MAX or SD900 portable sampler (only). Refer to Parts and accessories on page 22 for cable ordering information.

Cable	Description
Regulator to deep cycle battery (8710900)	Strain relief and a two-conductor wire with spade terminals on one end and ring lugs on the other end.
900 MAX controller to power (8711000)	Ring lugs on one end, two-conductor wire and 2-pin connector on the other end.
SD900 controller to power (8762100)	Ring lugs on one end, two-conductor wire and 3-pin connector on the other end.

1. Open the regulator enclosure.
2. Wire the solar panel unit to the regulator, refer to Figure 6 on page 6.

Note: *Positive wires are red or white and negative wires are black. Always connect wires to the properly labeled polarity.*

3. Attach the pre-wired Thermal Protection Sensor to the side of the battery source with adhesive-backed foam tape. The Thermal Protection Sensor continually controls the battery temperature and charge threshold and shuts down the regulator in the event of overheating.

Note: *Do not attach the thermal protection sensor to damaged batteries. Refer to Battery Replacement on page 21 for more information.*

4. Connect the sampler cable connector to the 900 MAX or SD900 sampler and connect the sampler cable to the deep cycle battery (hardware is not provided). If using an SD900 Sampler, be sure to use the 3-pin cable (Parts and accessories on page 22).
5. Remove the nut on the battery cable strain relief and feed the battery cable wires through the third hole on the regulator. Thread the nut over the cable wires and tighten to secure. Connect the spade terminals to the screw terminals. Refer to Figure 8 on page 10.
6. Connect the battery cable to the deep cycle battery (hardware is not provided).
7. Locate the two fuse holders and unscrew to open. Place an 8 amp, 125 V, 5 x 20 mm fuse (Parts and accessories on page 22) into each fuse holder and screw the holders back together.
8. Close the regulator enclosure with the gasket and cover properly seated and tighten all strain relief fittings.

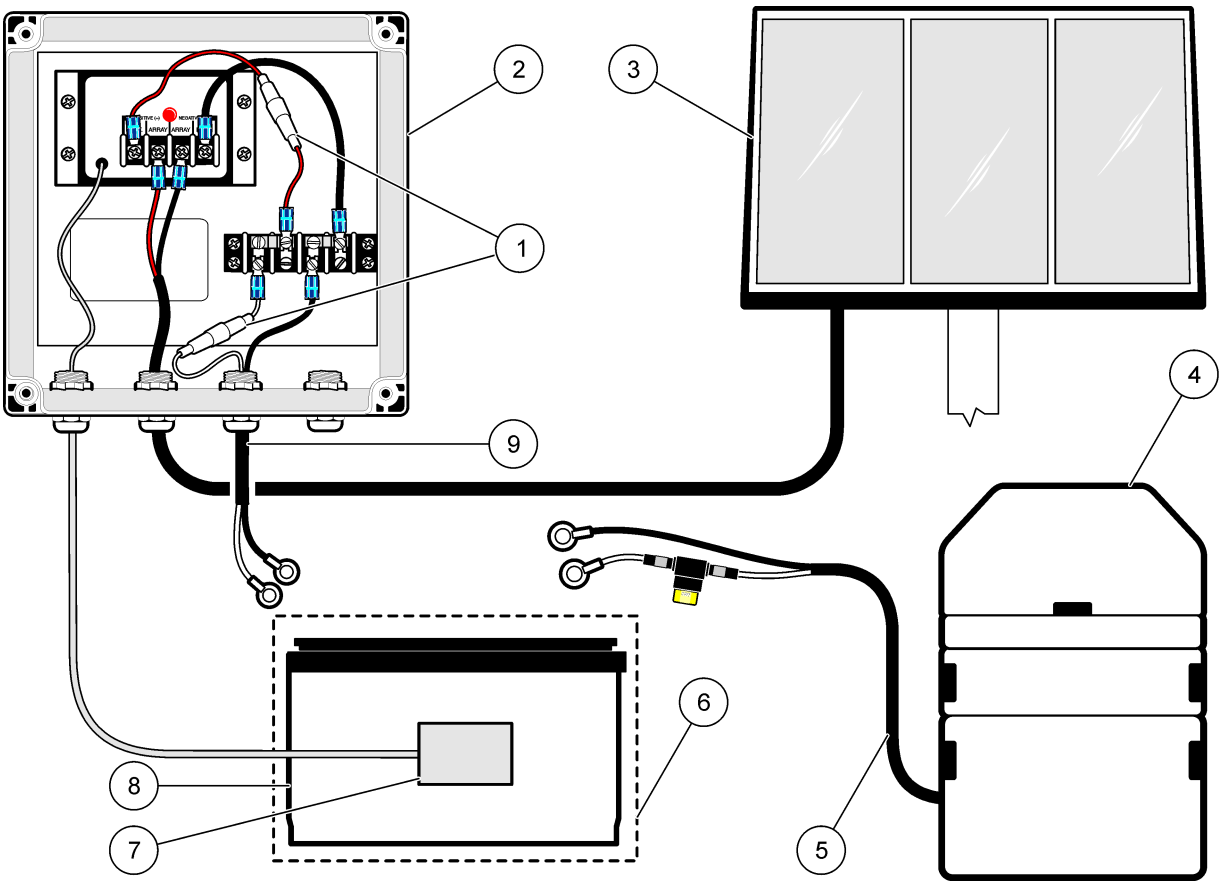

Figure 8 Set up a 900 MAX or SD900 sampler

1	Fuse holders	**6**	Deep cycle battery enclosure [2]
2	Regulator [1]	**7**	Thermal protection sensor
3	Solar panel	**8**	Deep cycle battery
4	Sampler	**9**	Cable (8710900)
5	Sampler cable, 900 MAX (8711000) or SD900 (8762100)		

[1] Red and white wires to positive. Black wires to negative.
[2] White wires to positive. Black wires to negative.

Set up a 900 MAX or SD900 sampler with a 950 flow meter

The table below lists the cables needed to set up a 900 MAX or SD900 sampler and a 950 flow meter. Refer to Parts and accessories on page 22 for cable ordering information.

Cable	Description
Regulator to deep cycle battery (8710900)	Strain relief and a two-conductor wire with spade terminals on one end and ring lugs on the other end.
Flow meter to regulator (8710600)	Strain relief fitting and a two-conductor wire with spade terminals on one end and a connector on the other end.
900 MAX controller to power (8711000)	Ring lugs on one end, two-conductor wire and two-pin connector on the other end.
SD900 controller to power (8762100)	Ring lugs on one end, two-conductor wire and three-pin connector on the other end.
Flow meter to SD900 controller (8757100)	Multi-purpose full cable, 10 ft (3.048 m)
Flow meter to SD900 controller (8757000)	Multi-purpose full cable, 25 ft (7.62 m) (if cable longer than 25 ft is needed, order the SE 813 cable)
Flow meter to 900 MAX controller (940)	Multi-purpose full cable, 10 ft (3.048 m)
Flow meter to 900 MAX controller (540)	Multi-purpose full cable, 25 ft (7.62 m) (if cable longer than 25 ft is needed, order the SE 813 cable)

There are two set up options:

- Option to connect the flow meter to the sampler
- Option to connect the flow meter to the regulator

Option to connect the flow meter to the sampler

Warning

Potential explosion hazard. The 1414 and other deep cycle batteries (if enclosed or housed) must be housed in a ventilated enclosure to make sure that combustible gases that occur during charging operations are released.

1. Open the regulator enclosure.
2. Wire the solar panel unit to the regulator, refer to Figure 6 on page 6.

Note: *Positive wires are red or white and negative wires are black. Always connect wires to the properly labeled polarity.*

3. Attach the pre-wired Thermal Protection Sensor to the side of the battery source with adhesive-backed foam tape. The Thermal Protection Sensor continually controls the battery temperature and charge threshold and shuts down the regulator in the event of overheating.

Note: *Do not attach the thermal protection sensor to damaged batteries. Refer to Battery Replacement on page 21 for more information.*

4. Connect the appropriate sampler cable connector to the 900 MAX or SD900 sampler and connect the sampler cable to the deep cycle battery (hardware is not provided).
5. Remove the nut on the battery cable strain relief and feed battery cable wires through the third hole on the regulator. Thread the nut over the wire and tighten to secure. Connect the spade terminals to the screw terminals. Refer to Figure 9 on page 13.
6. Connect the battery cable to the deep cycle battery (hardware is not provided).
7. Connect the flow meter cable 6-pin connector to the 950 flow meter.

8. Connect the flow meter cable 7-pin connector to the sampler.
9. Locate the two fuse holders and unscrew to open. Place an 8 amp, 125 V, 5 x 20 mm fuse (Parts and accessories on page 22) into each fuse holder and screw the holders back together.
10. Close the regulator enclosure with the gasket and cover properly seated and tighten all strain relief fittings.

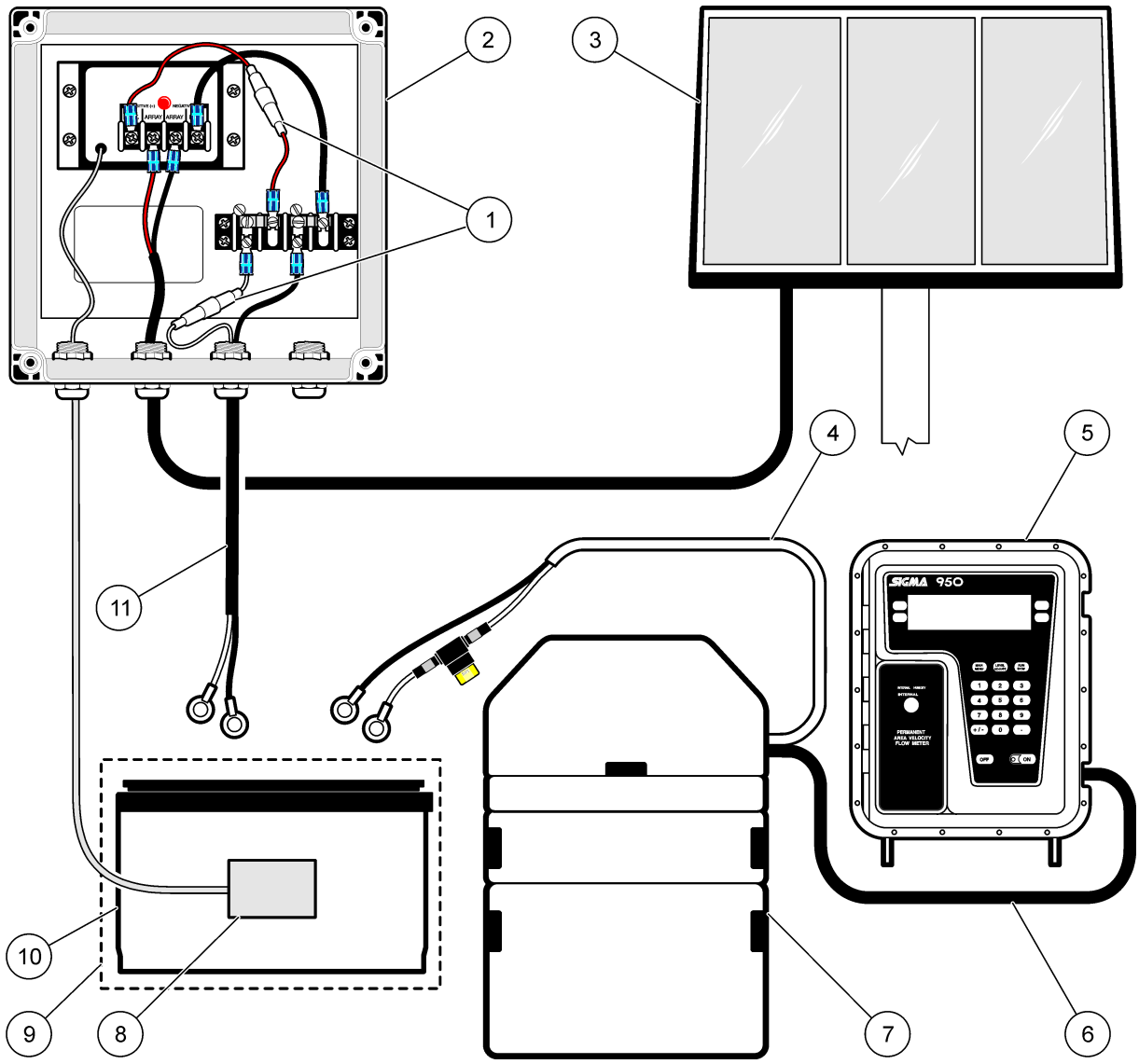

Figure 9 900 MAX or SD900 sampler with a 950 flow meter connected to a sampler

1	Fuse holders	**7**	Sampler
2	Regulator [1]	**8**	Thermal protection sensor
3	Solar panel	**9**	Deep cycle battery enclosure [2]
4	Sampler cable, 900 MAX (8711000) or SD900 (8762100)	**10**	Deep cycle battery
5	950 flow meter	**11**	Cable (8710900)
6	Cable, SD900 (8757100) or 900 MAX (940)		

[1] Red and white wires to positive. Black wires to negative.
[2] White wires to positive. Black wires to negative.

Option to connect the flow meter to the regulator

Warning

Potential explosion hazard. The 1414 and other deep cycle batteries (if enclosed or housed) must be housed in a ventilated enclosure to make sure that combustible gases that occur during charging operations are released.

1. Open the regulator enclosure.
2. Wire the solar panel unit to the regulator, refer to Figure 6 on page 6.

Note: *Positive wires are red or white and negative wires are black. Always connect wires to the properly labeled polarity.*

3. Attach the pre-wired Thermal Protection Sensor to the side of the battery source with adhesive-backed foam tape. The Thermal Protection Sensor continually controls the battery temperature and charge threshold and shuts down the regulator in the event of overheating.

Note: *Do not attach the thermal protection sensor to damaged batteries. Refer to Battery Replacement on page 21 for more information.*

4. Connect the appropriate sampler cable connector to the 900 MAX or SD900 sampler and connect the sampler cable to the deep cycle battery (hardware is not provided).
5. Remove the nut on the battery cable strain relief and feed battery cable wires through the third hole on the regulator. Thread the nut over the wire and tighten to secure. Connect the spade terminals to the screw terminals. Refer to Figure 10 on page 15.
6. Connect the battery cable to the deep cycle battery (hardware is not provided).
7. Connect the flow meter cable connector to the 950 flow meter.
8. Remove the plug from the fourth hole on the regulator.
9. Remove the nut from the flow meter cable strain relief and feed the flow meter cable wires through the fourth hole on the regulator. Thread the nut over the wires and tighten to secure. Connect the spade terminals to the screw terminals as shown in Figure 10 on page 15.
10. Locate the two fuse holders and unscrew to open. Place an 8 amp, 125 V, 5 x 20 mm fuse (Parts and accessories on page 22) into each fuse holder and screw the holders back together.
11. Close the regulator enclosure with the gasket and cover properly seated and tighten all strain relief fittings.

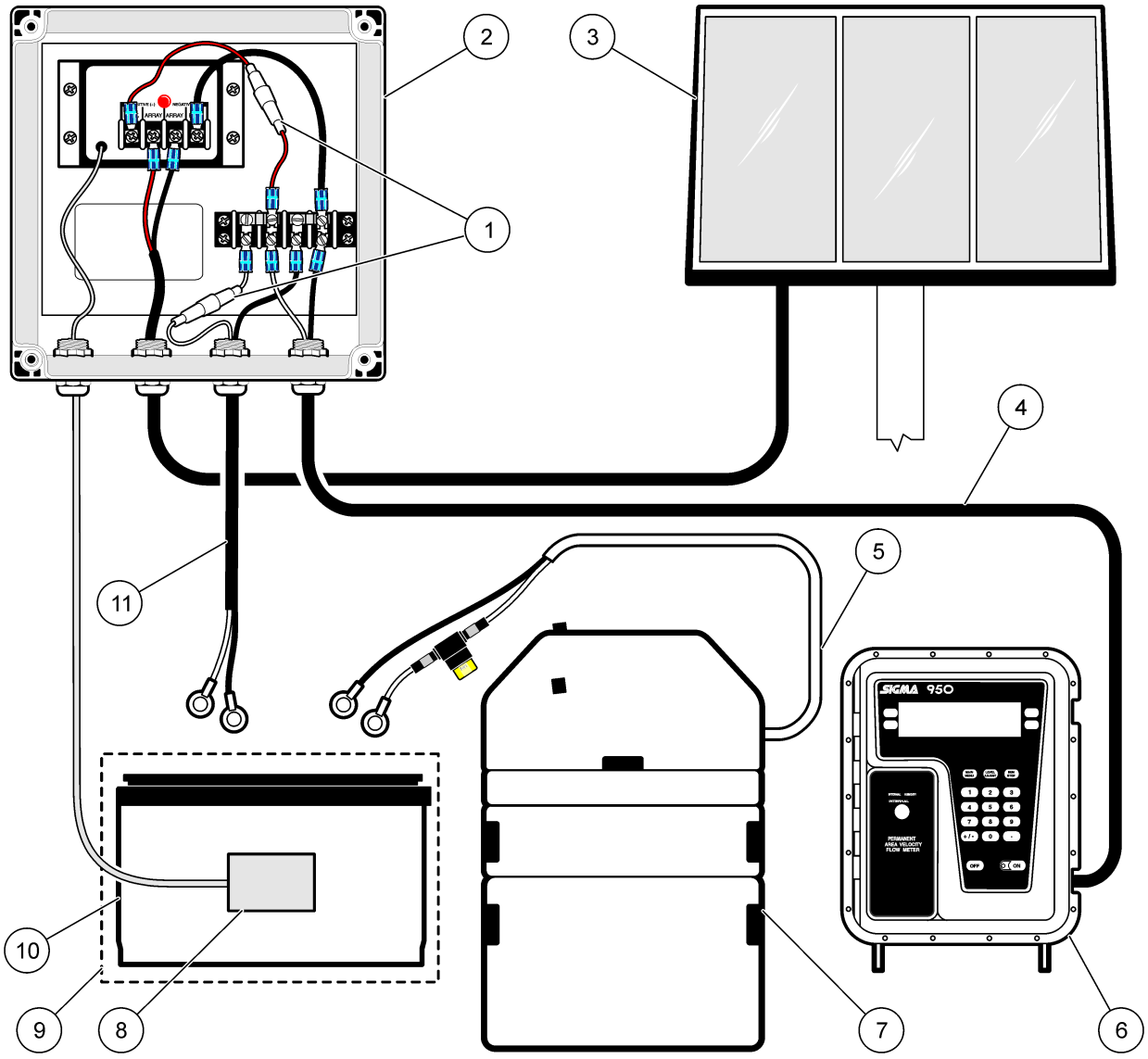

Figure 10 900 MAX or SD900 sampler with a 950 flow meter connected to a regulator

1	Fuse holders	**7**	Sampler
2	Regulator [1]	**8**	Thermal protection sensor
3	Solar panel	**9**	Deep cycle battery enclosure [2]
4	Cable (8710600)	**10**	Deep cycle battery
5	Sampler cable, 900 MAX (8711000) or SD900 (8762100)	**11**	Cable (8710900)
6	950 flow meter		

[1] Red and white wires to positive. Black wires to negative.
[2] White wires to positive. Black wires to negative.

Set up multiple 950 flow meters

Warning

Potential explosion hazard. The 1414 and other deep cycle batteries (if enclosed or housed) must be housed in a ventilated enclosure to make sure that combustible gases that occur during charging operations are released.

Multiple 950 flow meters set up requires a junction box. The table below lists the cables needed to set up multiple 950 flow meters. Refer to Parts and accessories on page 22 for cable ordering information.

Cable	Description
Regulator to deep cycle battery (8710900)	Strain relief and a two-conductor wire with spade terminals on one end and ring lugs on the other end.
Flow meter to regulator (8710600)	Strain relief fitting and a two-conductor wire with spade terminals on one end and a connector on the other end.
Junction box to regulator connection (8711300)	Strain relief fitting and a two-conductor wire with spade terminals on both ends.

1. Open the regulator enclosure.
2. Wire the solar panel unit to the regulator, refer to Figure 6 on page 6.

Note: *Positive wires are red or white and negative wires are black. Always connect wires to the properly labeled polarity.*

3. Attach the pre-wired Thermal Protection Sensor to the side of the battery source with adhesive-backed foam tape. The Thermal Protection Sensor continually controls the battery temperature and charge threshold and shuts down the regulator in the event of overheating.

Note: *Do not attach the thermal protection sensor to damaged batteries. Refer to Battery Replacement on page 21 for more information.*

4. Remove the nut on the battery cable strain relief and feed the battery cable wires through the third hole on the regulator. Thread the nut over the wires and tighten to secure. Connect the spade terminals to the screw terminals. Refer to Figure 11 on page 18.
5. Connect the battery cable to the deep cycle battery (hardware is not provided).
6. Remove the plug from the fourth hole on the bottom of the regulator.
7. Remove the nut from the junction box connection cable strain relief and feed the connection cable through the fourth hole on the regulator. Thread the nut over the wire and tighten to secure. Connect the spade terminals to the screw terminals.
8. Feed the other end of the junction box connection cable through the strain relief fitting on the side of the junction box. Connect the spade terminals to the screw terminals. Tighten the strain relief to secure.
9. Connect each flow meter cable connector to the 950 flow meters.
10. Remove the nuts from the flow meter cable strain reliefs and individually feed the flow meter cable wires through a hole on the junction box.
11. Thread the nut over the wire and tighten to secure. Connect the spade terminals to the screw terminals.
12. After connecting all the spade terminals to the junction box screw terminals, loosen the terminal screws and slide on the supplied jumper clips (4856300). Securely screw the jumper clips and spade terminals in place.

13. Locate the two fuse holders and unscrew to open. Place an 8 amp, 125 V, 5 x 20 mm fuse (Parts and accessories on page 22) into each fuse holder and screw the holders back together.
14. Close the regulator enclosure with the gasket and cover properly seated and tighten all strain relief fittings.

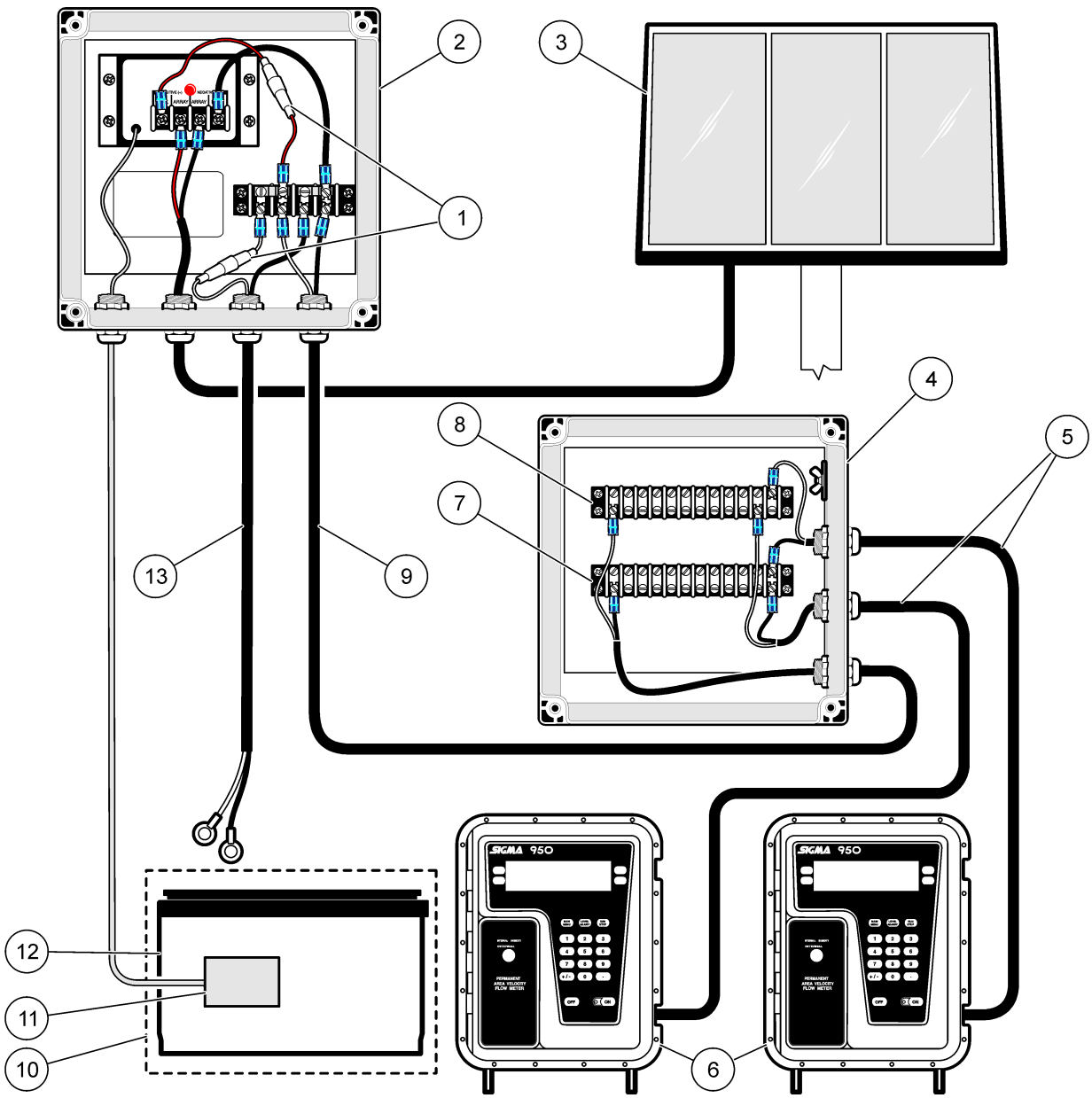

Figure 11 Multiple flow meters

1	Fuse holders	**8**	White wires (–), positive
2	Regulator [1]	**9**	Cable (8711300)
3	Solar panel	**10**	Deep cycle battery enclosure [2]
4	Junction box	**11**	Thermal protection sensor
5	Cable (8710600)	**12**	Deep cycle battery
6	950 flow meter	**13**	Cable (8710900)
7	Black wires (–), negative		

[1] Red and white wires to positive. Black wires to negative.
[2] White wires to positive. Black wires to negative.

Set up multiple 900 MAX or SD900 samplers

Warning

Potential explosion hazard. The 1414 and other deep cycle batteries (if enclosed or housed) must be housed in a ventilated enclosure to make sure that combustible gases that occur during charging operations are released.

The table below lists the cables needed to set up multiple samplers. Refer to Parts and accessories on page 22 for cable ordering information.

Cable	Description
Regulator to deep cycle battery (8710900)	Strain relief and a two-conductor wire with spade terminals on one end and ring lugs on the other end.
900 MAX controller to power (8711000)	Ring lugs on one end, two-conductor wire and 2-pin connector on the other end.
SD900 controller to power (8762100)	Ring lugs on one end, two-conductor wire and 3-pin connector on the other end.

1. Open the regulator enclosure.
2. Wire the solar panel unit to the regulator, refer to Figure 6 on page 6.

Note: *Positive wires are red or white and negative wires are black. Always connect wires to the properly labeled polarity.*

3. Attach the pre-wired Thermal Protection Sensor to the side of the battery source with adhesive-backed foam tape. The Thermal Protection Sensor continually controls the battery temperature and charge threshold and shuts down the regulator in the event of overheating.

Note: *Do not attach the thermal protection sensor to damaged batteries. Refer to Battery Replacement on page 21 for more information.*

4. Connect the appropriate sampler cable connectors to the 900 MAX or SD900 samplers and connect the sampler cables to the deep cycle battery (hardware is not provided).
5. Remove the nut from the battery cable strain relief and feed the battery cable wires through the third hole on the regulator. Thread the nut over the wires and tighten to secure. Connect spade terminals to the screw terminals. Refer to Figure 12 on page 20.
6. Connect the battery cable to the deep cycle battery (hardware is not provided).
7. Locate the two fuse holders and unscrew to open. Place an 8 amp, 125 V, 5 x 20 mm fuse (Parts and accessories on page 22) into each fuse holder and screw the holders back together.
8. Close the regulator enclosure with the gasket and cover properly seated and tighten all strain relief fittings.

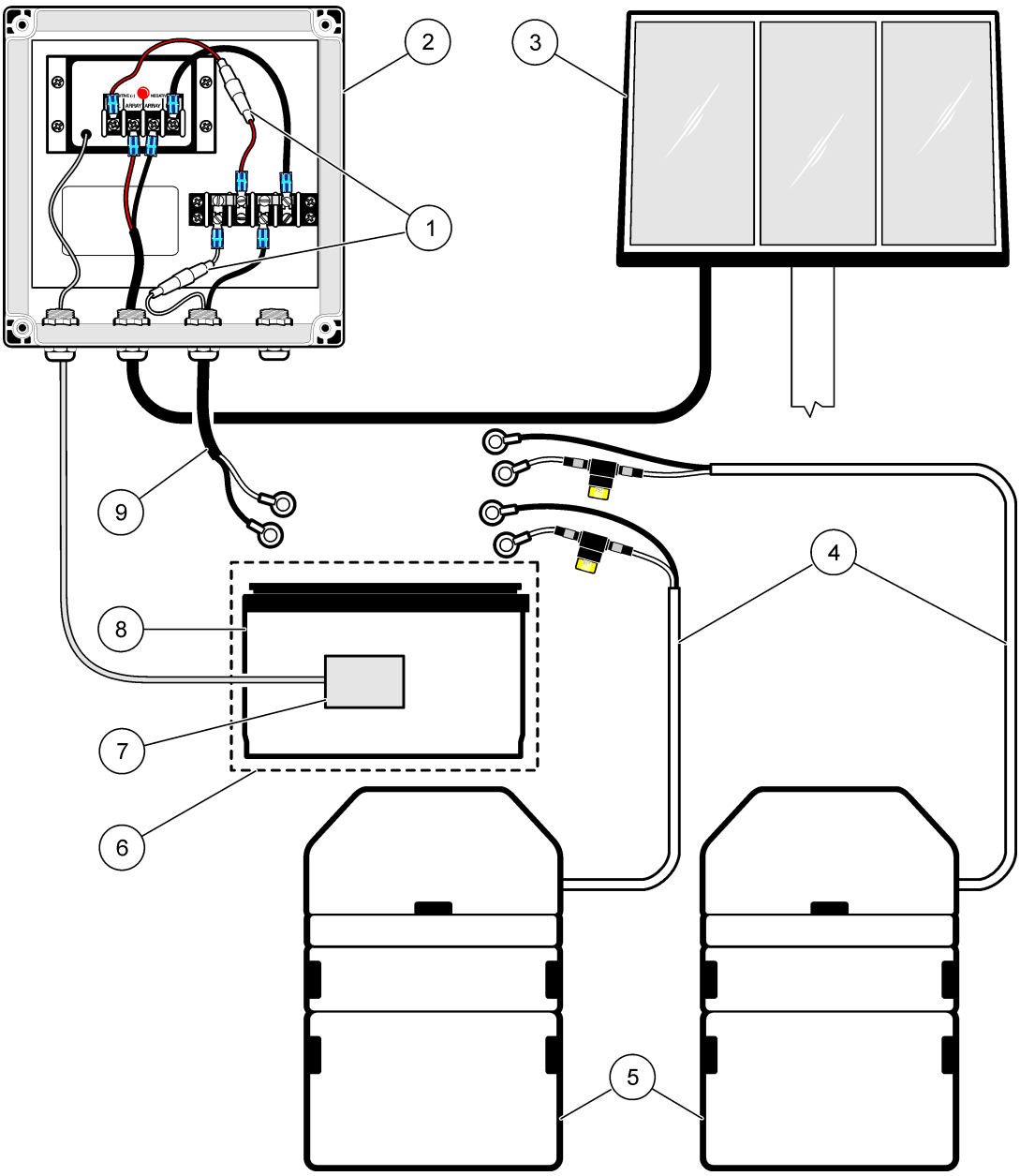

Figure 12 Multiple 900 MAX or SD900 samplers

1	Fuseholders	**6**	Deep cycle battery enclosure [2]
2	Regulator [1]	**7**	Thermal protection sensor
3	Solar panel	**8**	Deep cycle battery
4	Sampler cable, 900 MAX (8711000) or SD900 (8762100)	**9**	Cable (8710900)
5	Sampler		

[1] Red and white wires to positive. Black wires to negative.
[2] White wires to positive. Black wires to negative.

Battery Replacement

Important Note: *Always reconnect the Thermal Protection Sensor to the replacement battery to make sure that there is continued protection against over charging or battery fault.*

1. Carefully remove the Thermal Protection Sensor from the old battery. Recycle or dispose of the lead acid battery in a manner appropriate to local or state regulations.
2. Attach the Thermal Protection Sensor to the new battery with duck tape.
3. Place the battery into a ventilated enclosure to ensure that combustible gases that occur during charging operations are released.

Parts and accessories

Description	Catalog number
Solar panel regulator	8710000
Solar panel junction box	8720000
20 x 2.843, ¼ in. U-bolt and nut	5141000
Connector, spade	4129700
Fuse, 8 amp, 125 V, 5 x 20 mm	8711100

Solar modules	Catalog number
10 W, with 15 ft cable (4.572 m) and mounting bracket	8711700
20 W, with 15 ft cable (4.572 m) and mounting bracket	8711800
30 W, with 15 ft cable (4.572 m) and mounting bracket	8711900
40 W, with 15 ft cable (4.572 m) and mounting bracket	8712000
50 W, with 15 ft cable (4.572 m) and mounting bracket	8712100
60 W, with 15 ft cable (4.572 m) and mounting bracket	8712200
75 W, with 15 ft cable (4.572 m) and mounting bracket	8712300

Deep cycle batteries	Catalog number
Gel electrolyte, 6 amp hour	1414
Gel, 12 volt, 12 amp hour	8712400
Gel, 12 volt, 26 amp hour	8712500
Gel, 12 volt, 40 amp hour	8712600
Gel, 12 volt, 74 amp hour	8712700
Gel, 12 volt, 98 amp hour	8712800
Gel, 12 volt, 198 amp hour	8712900

Battery cables	Catalog number
Regulator/junction box to flow meter, 10 ft (3.048 m)	8710600
Regulator to 1414 battery, 10 ft (3.048 m)	8710700
Regulator to deep cycle battery, 10 ft (3.048 m)	8710900
Regulator to junction box w/ strain relief, 10 ft (3.048 m)	8711300
Sampler to deep cycle battery, 10 ft (3.048 m), 2-pin for 900 and 900 MAX samplers	8711000
Sampler to deep cycle battery, 10 ft (3.048 m), 3-pin for SD900 samplers	8762100
Flow meter to SD900 controller, multi-purpose full, 10 ft (3.048 m)	8757100
Flow meter to 900 and 900 MAX controllers, multi-purpose full, 10 ft (3.048 m)	940

Accessories	Catalog number
Sealed strain relief bushing kit for user supplied cable, fits 0.20 to 0.35 cable O.D.	9711400
Sealed strain relief Bushing kit for user supplied cable, fits 0.23 to 0.47 cable O.D.	9711300

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Edition 4, November 2009