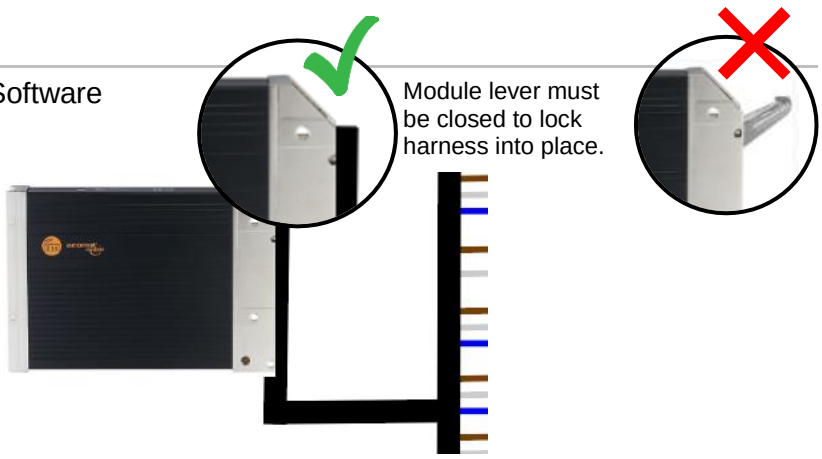
Sensor Base Kit 23

Items Included in the Kit

Unpack the kit and review its contents.

Programmable Mobile Controller, with Software
Kit Quantity: 1
DF Part Number:
BASE-200

Harness CR0033 Adapter
(preinstalled on module with lever locked into place, see image.)
Kit Quantity: 1
DF Part Number: **HARN-ADPT-001**



WiFi/Bluetooth to CAN Bridge
Kit Quantity: 1
DF Part Number: **GEN-103**

CAN Bus Harness: The following harnesses are included (truck specific).

Harness, Chassis CAN
Kit Quantity: 1 (if applicable)
DF Part Number: **HARN-KCAN-001**

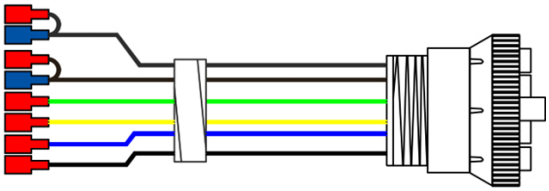
Harness, Chassis CAN
Kit Quantity: 1 (if applicable)
DF Part Number: **HARN-CAN-003**

(Harness includes a terminating resistor preinstalled.)

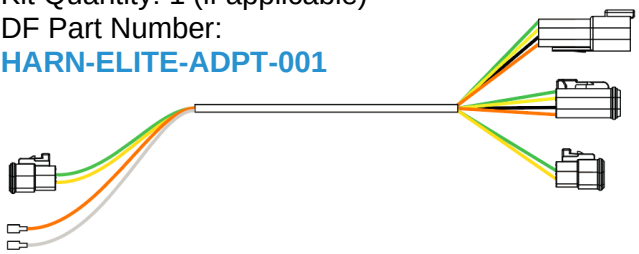
Optional CAN Bus Harnesses/Parts: Items available upon request (all sold separately).

Harness, Chassis CAN
Kit Quantity: 1 (if applicable)
DF Part Number: **HARN-CAN-001**

Harness, Chassis CAN
Kit Quantity: 1 (if applicable)
DF Part Number: **HARN-OBD-001**



Harness, Mixer CAN
Kit Quantity: 1 (if applicable)
DF Part Number:
HARN-ELITE-ADPT-001



Harness, Chassis CAN
Kit Quantity: 1 (if applicable)
DF Part Number:
HARN-BECK-001

w3s-j1939 Wedgelock
Dt06-3s Connector

Male Terminals
DF Part Number: **GEN-110**

Female Terminals
DF Part Number: **GEN-101**

Tools for the Job (not included)

- #2 Phillips screwdriver (or screw gun with #2 Philips end)
- Flat/Torq/Square screwdrivers or screw gun bits (alternate dashes)
- Wire crimpers
- Wire strippers
- Side cutters
- Light
- Drill/bits (holes to run wiring through dash)

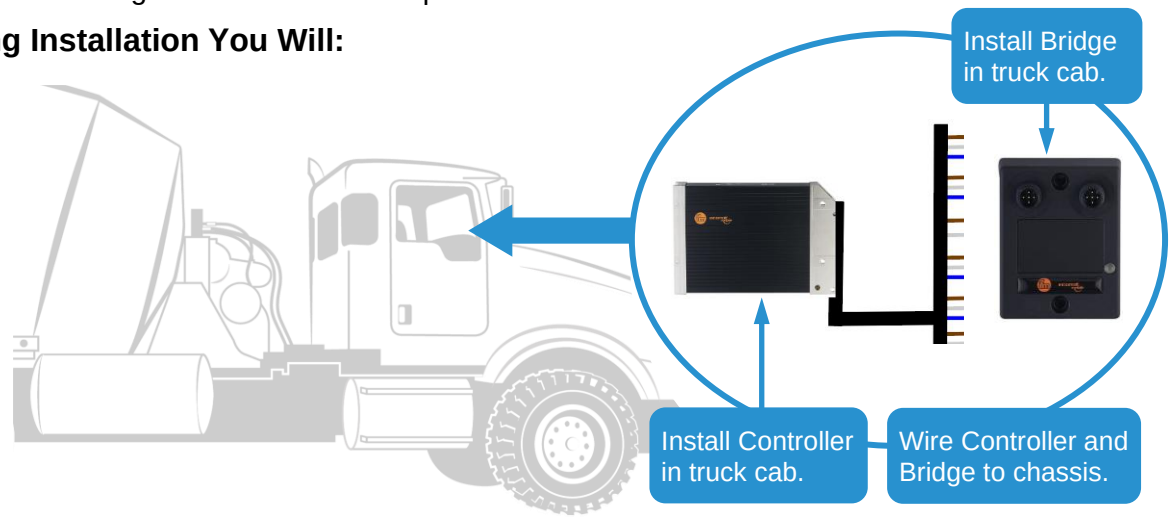
Additional Items Needed (not included)

- Grommets, bushings, hole plugs (to pass wiring through dash/firewall)
- Wire ties
- Colored tape (to mark cables)
- Screws/fasteners

Installation – Sensor Base Kit 23

This section covers the general installation steps for the Sensor Base Kit 23.

During Installation You Will:



INSTALLATION

The Sensor Base Kit 23 is tailored to your truck (model/make/year).

Step 1. Turn engine off, but leave battery connected (battery power is connected in a later step).

Step 2. Locate truck's wiring connections (CAN, battery power, ground, and ignition)—see **Chassis CAN and Power Connections** section for typical locations.

Step 3. Turn engine off, but leave battery connected (battery power is connected in a later step).

Step 4. Locate truck's wiring connections (CAN, battery power, ground, and ignition)—see **Chassis CAN and Power Connections** section for typical locations.

Step 5. Remove appropriate panel(s) to access connections.

Step 6. Select the Wire Diagram (from table below) that matches your kit harness configuration:

Wire Diagrams are located at end of Sensor Base Kit 23 section.

Mixer Type	CAN Bus Harness	Use Sensor Base 23 Wire Diagram:	Diagram No.
Rear	**HARN-KCAN-001**	**No CAN Based Mixer Integration**	**1**
	HARN-KCAN-001	**McNeilus Flex or Raven:** Use for mixer harness to connect to dash harness MC20 on FLEX, or MC17 on Raven **Kimble K2200:** Use for mixer harness to connect to cab box, 3-way DT splitter.	**2**
	HARN-CAN-003	**Kimble Cyklone**	**3**
	HARN-KCAN-001 (Chassis CAN Bus) **HARN-ELITE-ADPT-001** (Mixer CAN Bus, optional harness needed, contact DF+ to order separately)	**ELITE**	**4**
	HARN-BECK-001 (optional harness needed, contact DF+ to order separately)	**Beck Electric**	**5**
Front	**HARN-CAN-003**	**Terex Advance**	**6**
	HARN-OBD-001 (optional harness needed, contact DF+ to order separately)	**Terex Legacy**	**7**
	HARN-CAN-003	**Flex S-Series 2.0**	**8**
	HARN-CAN-003	**Flex S-Series Legacy**	**9**

Important Wiring Note: Always make the chassis power/ground connection to the Controller last.

If mounting the Controller or Bridge to a panel, fasten it before starting any wiring.

Step 7. **Install Sensors** (if applicable—Drum, Slump, Water Add, Washout, Quad)

To install and wire a new sensor—reference the appropriate sensor installation section.

To wire a preinstalled sensor to the Controller—use the wiring instructions from the appropriate DF+ sensor installation section.

For Example: To wire a preinstalled slump sensor, reference wiring instructions in the DF+ Slump Kit section.

Step 8. **Install DF+ Tablet Charger to Controller**, reference the Tablet Installation section.

To wire a preinstalled charger to the Controller—use the wiring instructions from the Tablet Installation section.

Step 9. 

Use Wire Diagram selected from table on previous page as reference for next steps.

Important: Route cables safely—avoid moving parts, pinch points, and sharp edges. Use a grommet or bushing on pass-thru holes as needed.

9.1. Wire Controller to Chassis CAN Bus—see Wire Diagram.

9.2. Connect Bridge to Controller—see Wire Diagram.

9.3. Connect Controller to chassis ignition, ground, and power—see Wire Diagram.

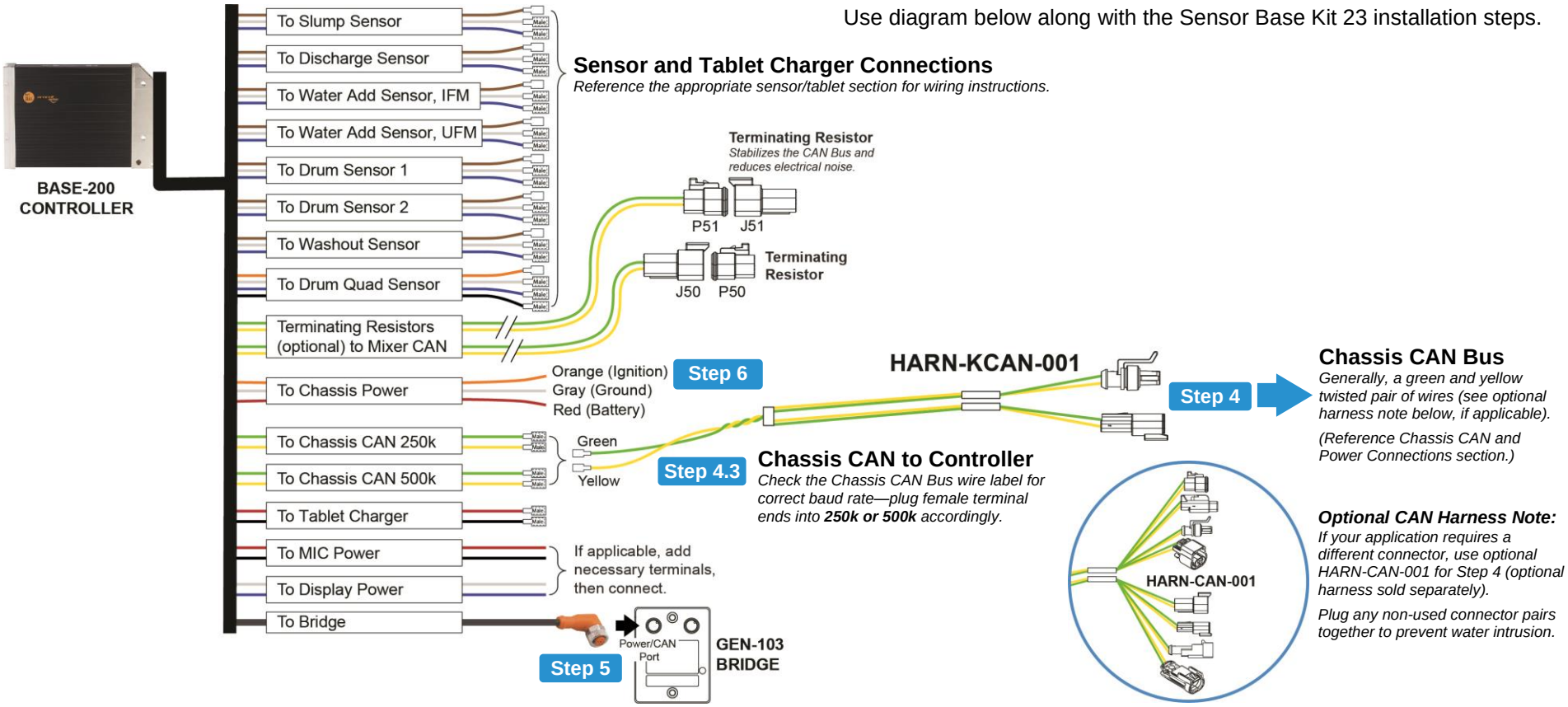
Step 10. When installation is complete, make sure all wiring connections are securely fastened.

Step 11. Verify the DF System is connected and functioning properly, reference the DF+ Verification Instructions (navigates the digital verification process).

For installation questions, please call DF+ Support at 630.518.4606.

Wire Diagram 1 Sensor Base 23 (No CAN Based Mixer Integration)

Use diagram below along with the Sensor Base Kit 23 installation steps.



Step 4. Connect Controller to Chassis CAN Bus (use HARN-KCAN-001)

4.1. Locate chassis CAN connector (connector is labeled)—reference Chassis CAN and Power Connections section.

4.2. Plug HARN-KCAN-001 into CAN Bus.

Note: If using optional HARN-CAN-001 (sold separately), use the pair of connectors that fits your chassis, then **plug remaining non-used pairs together** to prevent water intrusion, see diagram note.

4.3. Plug HARN-KCAN-001 into Controller's harness—use the connection (**250k or 500k**) that matches the Chassis CAN baud rate, see diagram.

Important: When routing wires to Controller, follow an existing wire path, or remove a rubber hole plug—watch for sharp edges, use a grommet or bushing on holes to prevent wire damage.

Step 5. Connect Bridge to Controller (use Controller cable labeled To Bridge)

Plug the M12/90-degree connector into Power/CAN port on Bridge—twist onto port until hand tight.

Step 6. Connect Controller to Chassis Power, Ignition, and Ground (use wires labeled To Chassis Power)

6.1. Locate chassis connections for battery power, ignition, and ground—connections are labeled. **Always connect power or ground last.**

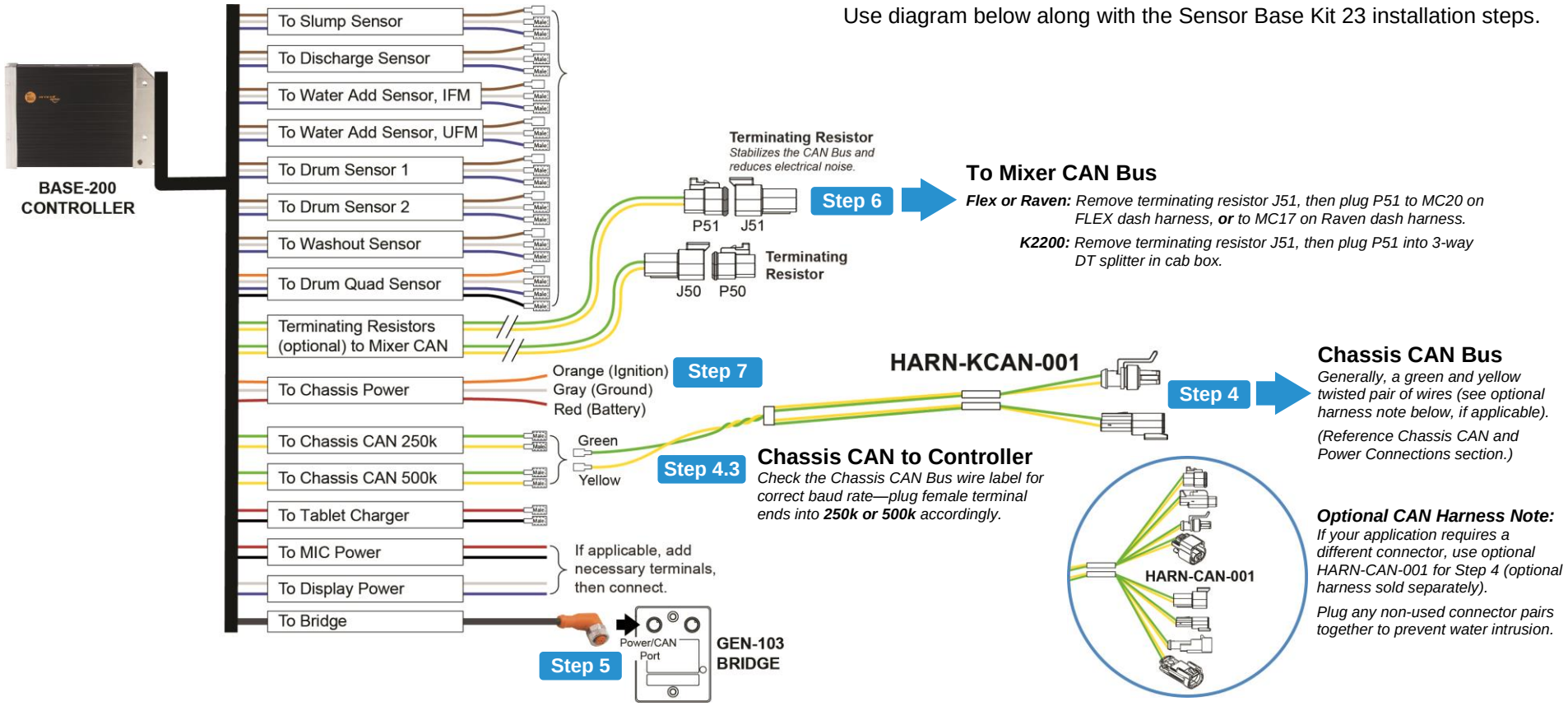
6.2. Locate the Controller harness wires labeled To Chassis Power.

6.3. The wires have TE terminal ends for a splice block. If needed, cut terminal off, strip end, and crimp on appropriate terminal provided in kit per your chassis requirement (i.e., ring terminal).

6.4. Connect wire ends to truck connectors (i.e., splice blocks, terminal posts, bullet connections): Orange (to IGN); Gray (to GND); Red (to PWR).

Wire Diagram 2 Sensor Base 23 (McNeilus Flex or Raven; Kimble K2200)

Use diagram below along with the Sensor Base Kit 23 installation steps.



Step 4. Connect Controller to Chassis CAN Bus (use HARN-KCAN-001)

4.1. Locate chassis CAN connector (connector is labeled)—reference Chassis CAN and Power Connections section.

4.2. Plug HARN-KCAN-001 into CAN Bus.

Note: If using optional HARN-CAN-001 (sold separately), use the pair of connectors that fits your chassis, then **plug remaining non-used pairs together** to prevent water intrusion, see diagram note.

4.3. Plug HARN-KCAN-001 into Controller's harness—use the connection (**250k or 500k**) that matches the Chassis CAN baud rate, see diagram.

Important: When routing wires to Controller, follow an existing wire path, or remove a rubber hole plug—watch for sharp edges, use a grommet or bushing on holes to prevent wire damage.

Step 5. Connect Bridge to Controller (use Controller cable labeled To Bridge)

Plug the M12/90-degree connector into Power/CAN port on Bridge—twist onto port until hand tight.

Step 6. Connect Controller to Mixer CAN Bus (use harness wire labeled To Mixer CAN)

6.1. Remove the appropriate terminating resistor (J51 or P50) from the controller harness wire labeled To Mixer CAN.

6.2. Plug the open connector to the mixer CAN bus connector, see diagram.

Step 7. Connect Controller to Chassis Power, Ignition, and Ground (use wires labeled To Chassis Power)

7.1. Locate chassis connections for battery power, ignition, and ground—connections are labeled. **Always connect power or ground last.**

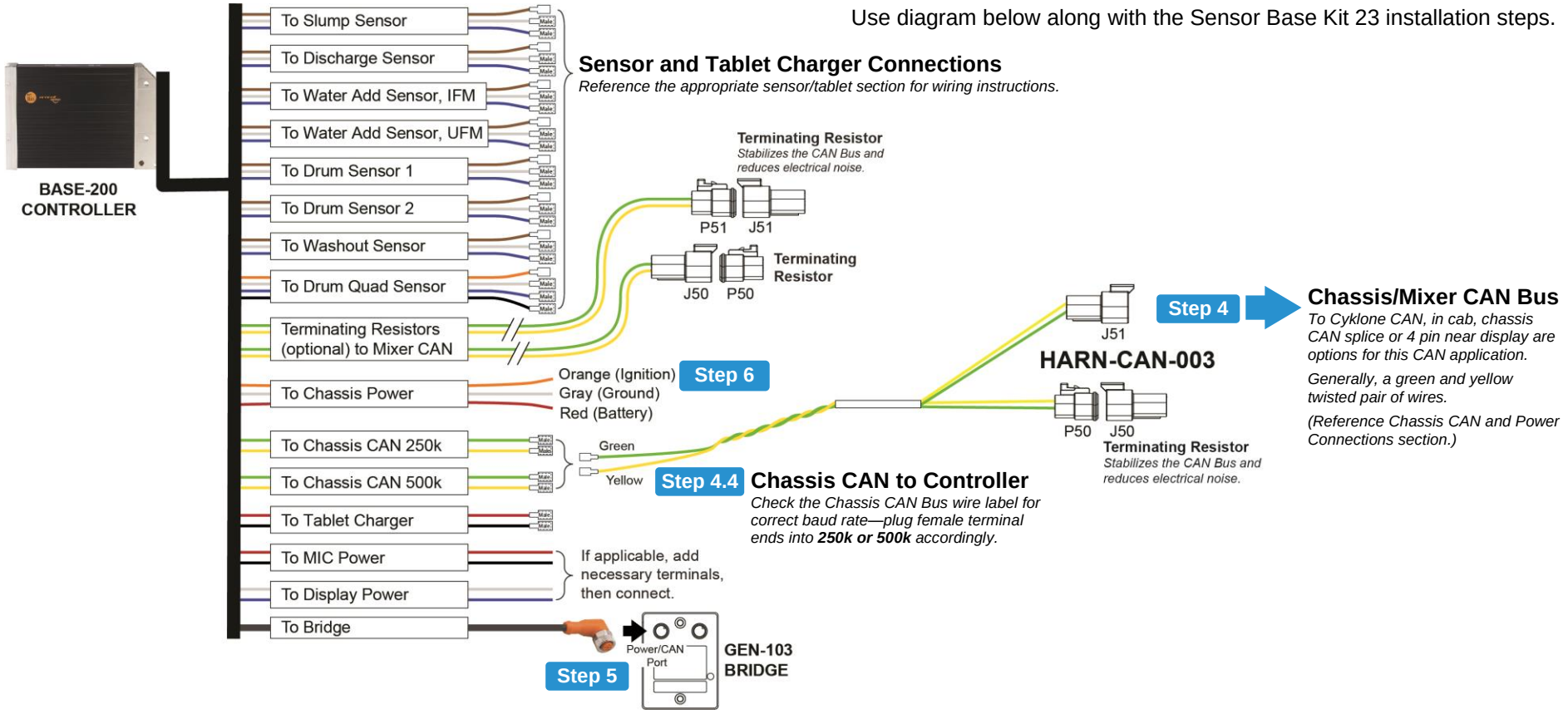
7.2. Locate the Controller harness wires labeled To Chassis Power.

7.3. The wires have TE terminal ends for a splice block. If needed, cut terminal off, strip end, and crimp on appropriate terminal provided in kit per your chassis requirement (i.e., ring terminal).

7.4. Connect wire ends to truck connectors (i.e., splice blocks, terminal posts, bullet connections): Orange (to IGN); Gray (to GND); Red (to PWR).

Wire Diagram 3 Sensor Base 23 (Kimble Cyklone)

Use diagram below along with the Sensor Base Kit 23 installation steps.



Step 4. Connect Controller to Chassis CAN Bus (use HARN-CAN-003)

4.1. Locate chassis CAN connector in cab (connector is labeled)—reference Chassis CAN and Power Connections section.

4.2. Plug HARN-CAN-003 into CAN Bus connection, see diagram.

4.3. **Plug a terminating resistor** into remaining connector.

4.4. Plug HARN-CAN-003 into Controller's harness—use the connection (**250k or 500k**) that matches the Chassis CAN baud rate, see diagram.

Important: When routing wires to Controller, follow an existing wire path, or remove a rubber hole plug—watch for sharp edges, use a grommet or bushing on holes to prevent wire damage.

Step 5. Connect Bridge to Controller (use Controller cable labeled To Bridge)

Plug the M12/90-degree connector into Power/CAN port on Bridge—twist onto port until hand tight.

Step 6. Connect Controller to Chassis Power, Ignition, and Ground (use wires labeled To Chassis Power)

6.1. Locate chassis connections for battery power, ignition, and ground—connections are labeled. **Always connect power or ground last.**

6.2. Locate the Controller harness wires labeled To Chassis Power.

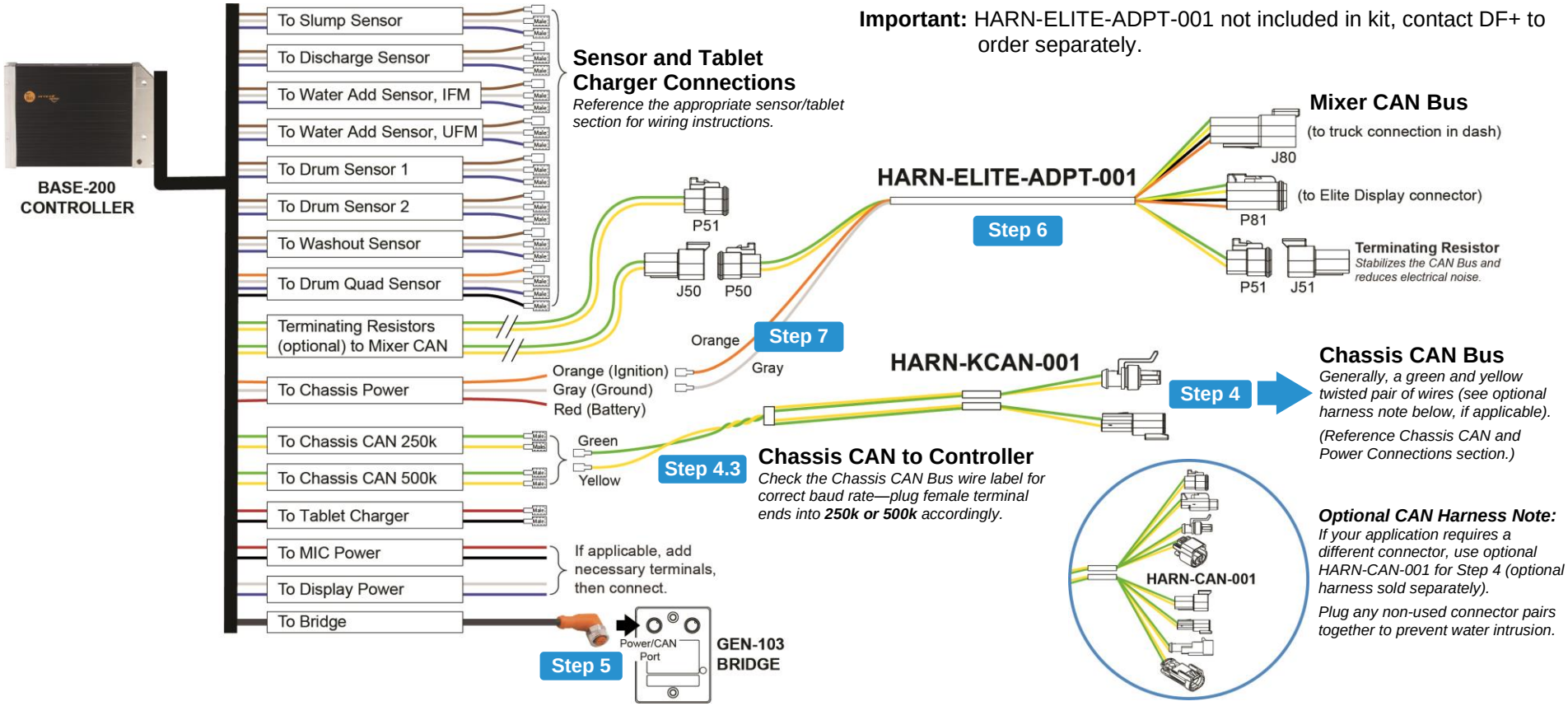
6.3. The wires have TE terminal ends for a splice block. If needed, cut terminal off, strip end, and crimp on appropriate terminal provided in kit per your chassis requirement (i.e., ring terminal).

6.4. Connect wire ends to truck connectors (i.e., splice blocks, terminal posts, bullet connections): Orange (to IGN); Gray (to GND); Red (to PWR).

Wire Diagram 4 Sensor Base 23 (Elite)

Use diagram below along with the Sensor Base Kit 23 installation steps.

Important: HARN-ELITE-ADPT-001 not included in kit, contact DF+ to order separately.



Step 4. Connect Controller to Chassis CAN Bus (use HARN-KCAN-001)

4.1. Locate chassis CAN connector (connector is labeled)—reference Chassis CAN and Power Connections section.

4.2. Plug HARN-KCAN-001 into CAN Bus.

Note: If using optional HARN-CAN-001 (sold separately), use the pair of connectors that fits your chassis, then plug remaining non-used pairs together to prevent water intrusion, see diagram note.

4.3. Plug HARN-KCAN-001 into Controller's harness—use the connection (**250k or 500k**) that matches the Chassis CAN baud rate, see diagram.

Important: When routing wires to Controller, follow an existing wire path, or remove a rubber hole plug—watch for sharp edges, use a grommet or bushing on holes to prevent wire damage.

Step 5. Connect Bridge to Controller (use Controller cable labeled To Bridge)

Plug the M12/90-degree connector into Power/CAN port on Bridge—twist onto port until hand tight.

Step 6. Connect Controller to Mixer CAN Bus (use harness HARN-ELITE-ADPT-001)

6.1. Remove terminating resistor (P50) from controller wire labeled To Mixer CAN (terminating resistor no longer needed), see diagram.

6.2. Plug HARN-Elite-ADPT-001 (P50 connector) into the open J50 connector.

6.3. Remove terminating resistor (J51) from the other wire labeled To Mixer CAN—then plug it into the HARN-Elite-ADPT-001 (P51 connector).

6.4. **Plug Elite harness into Mixer CAN Bus:**

a. Unplug the 4-pin connector from back of Elite Display.

b. Plug the matching HARN-ELITE-ADPT-001 connector end into the Elite Display.

c. Plug remaining connector end into the mixer CAN Bus connection.

Step 7. Connect to Chassis Power, Ignition, and Ground (use wires labeled To Chassis Power)

7.1. Locate Controller harness wires labeled To Chassis Power—**always connect power or ground last.**

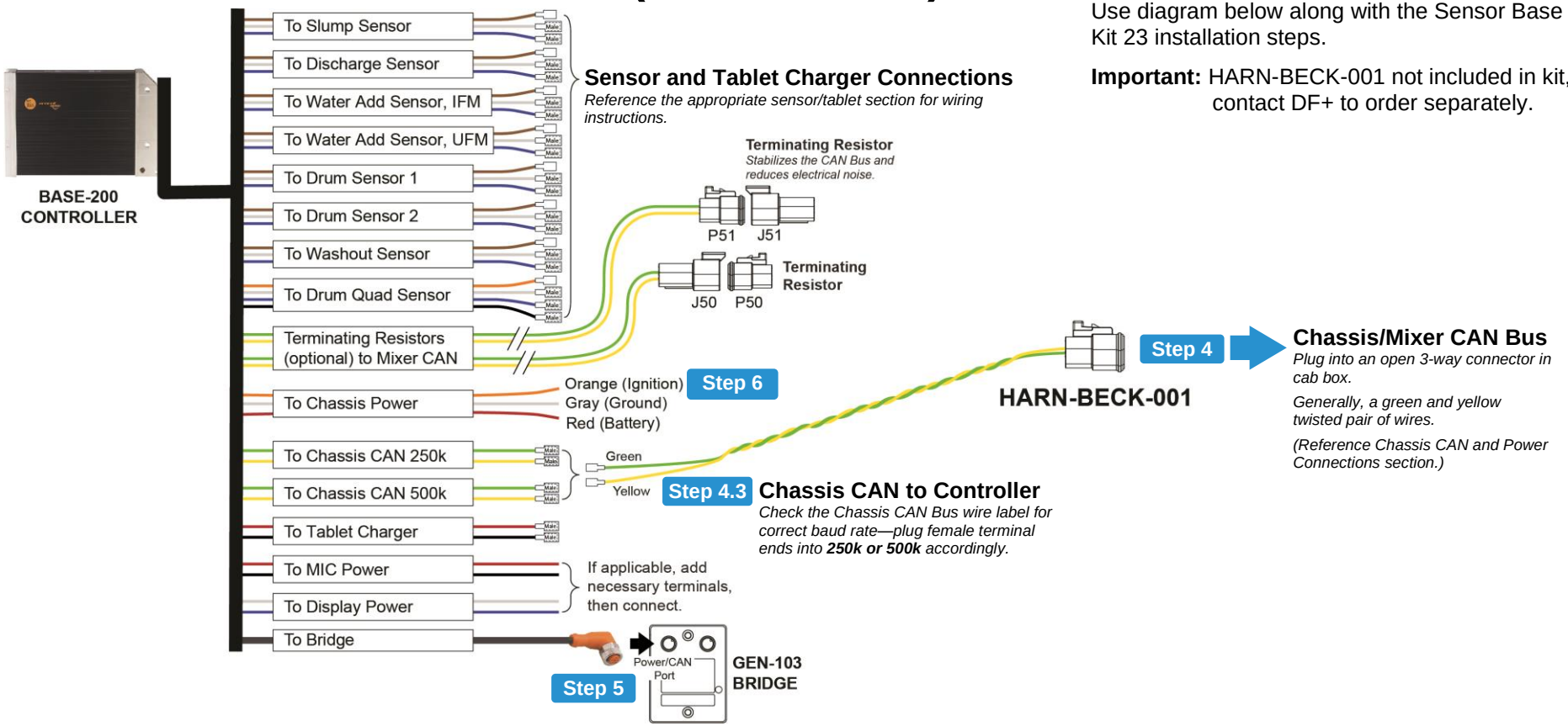
7.2. Strip orange and gray wires, then crimp on male terminals.

7.3. Connect male terminal ends to orange and gray female terminal ends on HARN-Elite-ADPT-001.

7.4. Locate chassis connection for battery power.

7.5. Connect red wire to chassis battery power. If needed, cut off the TE terminal end (used for a splice block), strip end, and crimp on appropriate terminal provided in kit (i.e., ring terminal).

Wire Diagram 5 Sensor Base 23 (Beck Electric)



Use diagram below along with the Sensor Base Kit 23 installation steps.

Important: HARN-BECK-001 not included in kit, contact DF+ to order separately.

Step 4. Connect Controller to Chassis/Mixer CAN Bus (use HARN-BECK-001)

4.1. Locate chassis CAN connector in cab (connector is labeled)—reference Chassis CAN and Power Connections section.

4.2. Plug HARN-BECK-001 into CAN Bus connection, see diagram.

4.3. Plug HARN-BECK-001 into Controller's harness—use the connection (**250k or 500k**) that matches the Chassis CAN baud rate, see diagram.

Important: When routing wires to Controller, follow an existing wire path, or remove a rubber hole plug—watch for sharp edges, use a grommet or bushing on holes to prevent wire damage.

Step 5. Connect Bridge to Controller (use Controller cable labeled To Bridge)

Plug the M12/90-degree connector into Power/CAN port on Bridge—twist onto port until hand tight.

Step 6. Connect Controller to Chassis Power, Ignition, and Ground (use wires labeled To Chassis Power)

6.1. Locate chassis connections for battery power, ignition, and ground—connections are labeled. **Always connect power or ground last.**

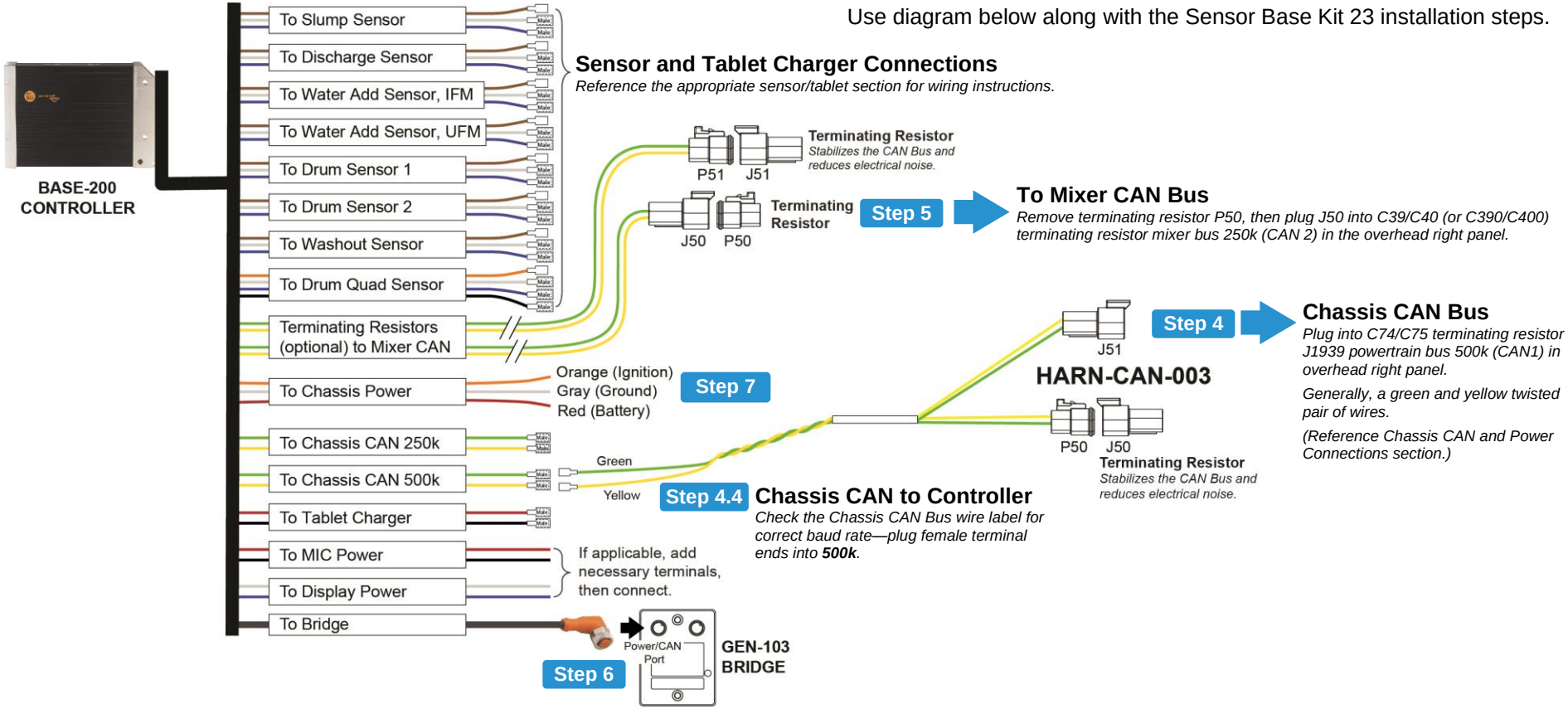
6.2. Locate the Controller harness wires labeled To Chassis Power.

6.3. The wires have TE terminal ends for a splice block. If needed, cut terminal off, strip end, and crimp on appropriate terminal provided in kit per your chassis requirement (i.e., ring terminal).

6.4. Connect wire ends to truck connectors (i.e., splice blocks, terminal posts, bullet connections): Orange (to IGN); Gray (to GND); Red (to PWR).

Wire Diagram 6 Sensor Base 23 (Terex Advance)

Use diagram below along with the Sensor Base Kit 23 installation steps.



Step 4. Connect Controller to Chassis CAN Bus (use HARN-CAN-003)

4.1. Chassis and Mixer are on the same CAN Bus—locate the C74/C75 powertrain (CAN1) connection (connector is labeled, reference Chassis CAN and Power Connections section.

4.2. Plug HARN-CAN-003 into C74/75 CAN Bus connection, see diagram.

4.3. **Plug a terminating resistor** into remaining connector.

4.4. Plug HARN-CAN-003 into Controller's harness—use the connection (**500k**) that matches the Chassis CAN 1 baud rate, see diagram.

Important: When routing wires to Controller, follow an existing wire path, or remove a rubber hole plug—watch for sharp edges, use a grommet or bushing on holes to prevent wire damage.

Step 5. Connect Controller to Mixer CAN Bus (use Controller wire labeled To Mixer CAN)

5.1. Remove terminating resistor (P50) from controller wire labeled To Mixer CAN (terminating resistor no longer needed), see diagram.

5.2. Plug the open J50 into C39/C40 (or C390/C400) mixer bus **250k** (CAN 2) connection, see

Step 6. Connect Bridge to Controller (use Controller cable labeled To Bridge)

Plug the M12/90-degree connector into Power/CAN port on Bridge—twist onto port until hand tight.

Step 7. Connect Controller to Chassis Power, Ignition, and Ground (use wires labeled To Chassis Power)

7.1. Locate chassis connections for battery power, ignition, and ground—connections are labeled. **Always connect power or ground last.**

7.2. Locate the Controller harness wires labeled To Chassis Power.

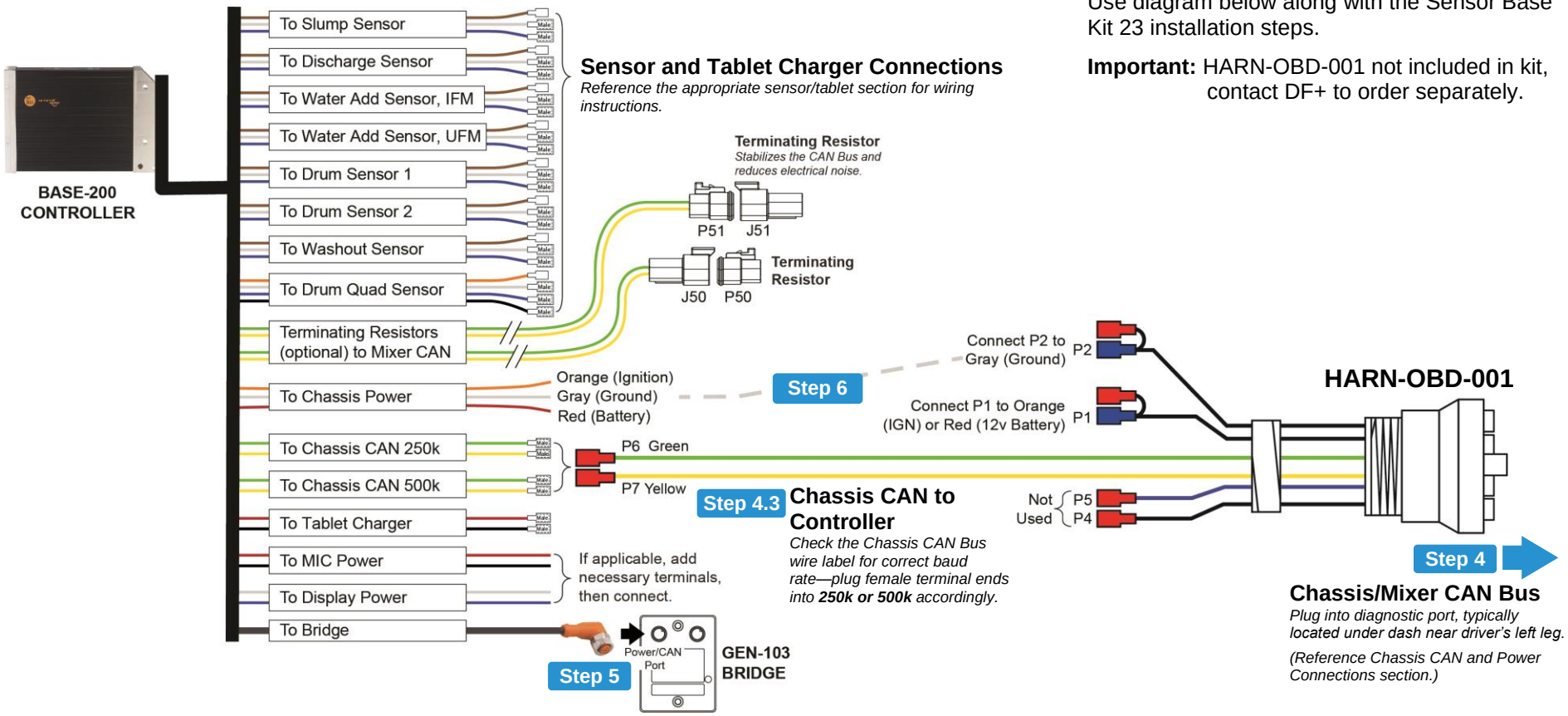
7.3. The wires have TE terminal ends for a splice block. If needed, cut terminal off, strip end, and crimp on appropriate terminal provided in kit per your chassis requirement (i.e., ring terminal).

7.4. Connect wire ends to truck connectors (i.e., splice blocks, terminal posts, bullet connections): Orange (to IGN); Gray (to GND); Red (to PWR).

Wire Diagram 7 Sensor Base 23 (Terex Legacy)

Use diagram below along with the Sensor Base Kit 23 installation steps.

Important: HARN-OBD-001 not included in kit, contact DF+ to order separately.



Step 4. Connect Controller to Chassis CAN Bus (use HARN-OBD-001)

4.1. Locate the diagnostic port in cab (connector is labeled)—reference Chassis CAN and Power Connections section.

If port is used by service technicians or in use currently, use a splitter (sold separately) to prevent having the system disconnected to run vehicle diagnostics through the port.

4.2. Plug HARN-OBD-001 into diagnostic port.

4.3. Plug HARN-OBD-001 wires (P6 green and P7 yellow) into Controller's harness wire labeled To Chassis CAN—use the connection (**250k or 500k**) that matches the Chassis CAN baud rate, see diagram.

Important: When routing wires to Controller, follow an existing wire path, or remove a rubber hole plug—watch for sharp edges, use a grommet or bushing on holes to prevent wire damage.

Step 5. Connect Bridge to Controller (use Controller cable labeled To Bridge)

Plug the M12/90-degree connector into Power/CAN port on Bridge—twist onto port until hand tight.

Step 6. Connect to Chassis Ground and to either Power or Ignition (use wires labeled To Chassis Power)

6.1. **Use a Test Light** (or multimeter) to determine if you will connect to ignition or 12v constant power.

With harness plugged into diagnostic port:

a. Put one Test Light lead into HARN-OBD-001 (P1 12v battery power) wire end.

b. Put the other Test Light lead into HARN-OBD-001 (P2 ground) wire end.

c. If light goes ON and OFF when key is turned on and off, connect to ignition.

d. If light stays ON when key is turned off, connect to 12v battery power).

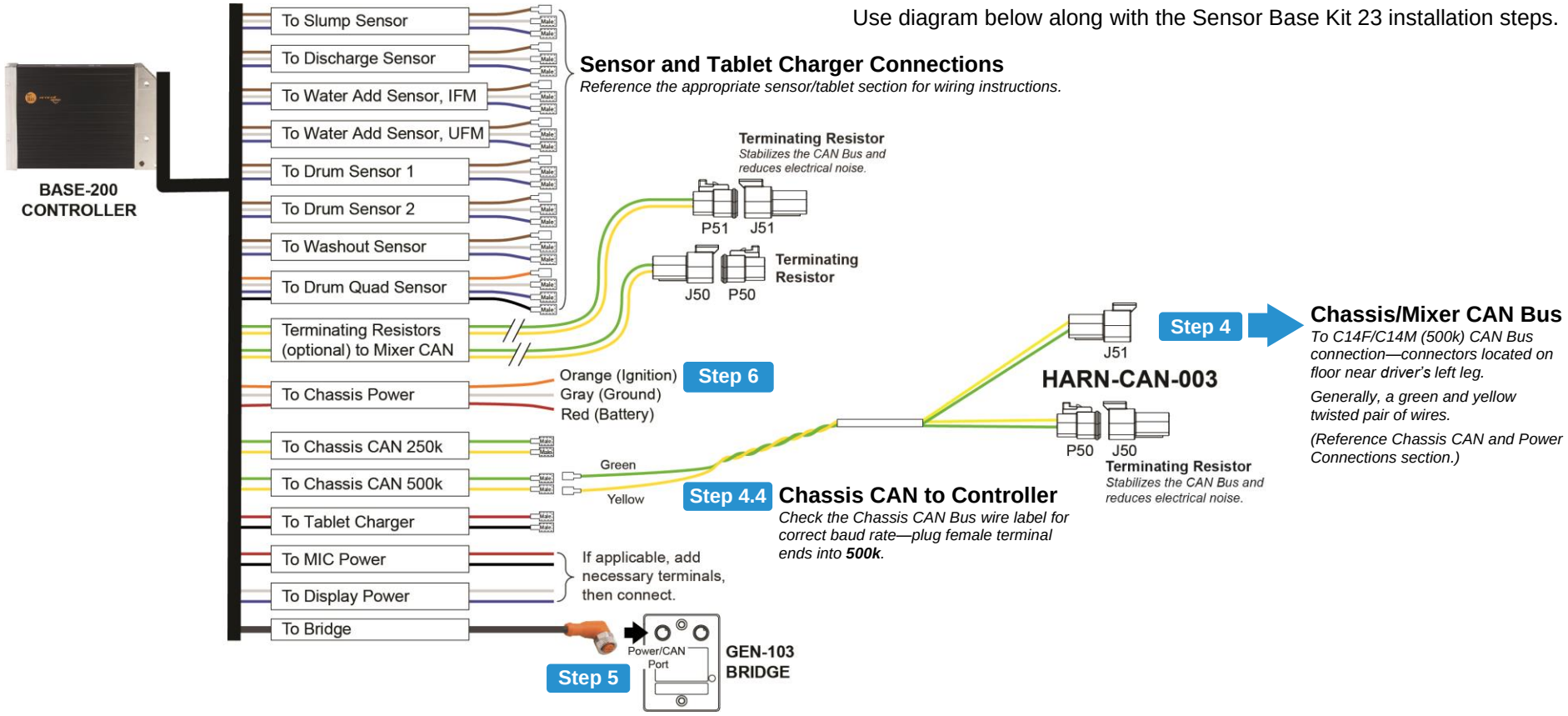
6.2. Locate Controller harness wires labeled To Chassis Power.

6.3. Per the Test Light results - strip **either** the orange (ignition) **or** red (battery) wire, then crimp on a male terminal—connect it to HARN-OBD-001 (P1 12v battery) wire female terminal.

6.4. Strip gray (ground) wire, then crimp on a male terminal—connect it to HARN-OBD-001 (P2 ground) wire female terminal.

Wire Diagram 8 Sensor Base 23 (Flex S-Series 2.0)

Use diagram below along with the Sensor Base Kit 23 installation steps.



Step 4. **Connect Controller to Chassis CAN Bus** (use HARN-CAN-003)

4.1. Locate chassis CAN connector in cab (connector is labeled)—reference Chassis CAN and Power Connections section.

4.2. Plug HARN-CAN-003 into CAN Bus connection, see diagram.

4.3. **Plug a terminating resistor** into remaining connector.

4.4. Plug HARN-CAN-003 into Controller's harness—use the connection (**500k**) that matches the Chassis CAN baud rate, see diagram.

Important: When routing wires to Controller, follow an existing wire path, or remove a rubber hole plug—watch for sharp edges, use a grommet or bushing on holes to prevent wire damage.

Step 5. **Connect Bridge to Controller** (use Controller cable labeled To Bridge)

Plug the M12/90-degree connector into Power/CAN port on Bridge—twist onto port until hand tight.

Step 6. **Connect Controller to Chassis Power, Ignition, and Ground** (use wires labeled To Chassis Power)

6.1. **Locate chassis connectors:**

- C17 connector for ground and battery power connection is located on floor near driver's left leg—connection is labeled.
- Ignition gets wired directly to ignition switch.

Always connect power or ground last.

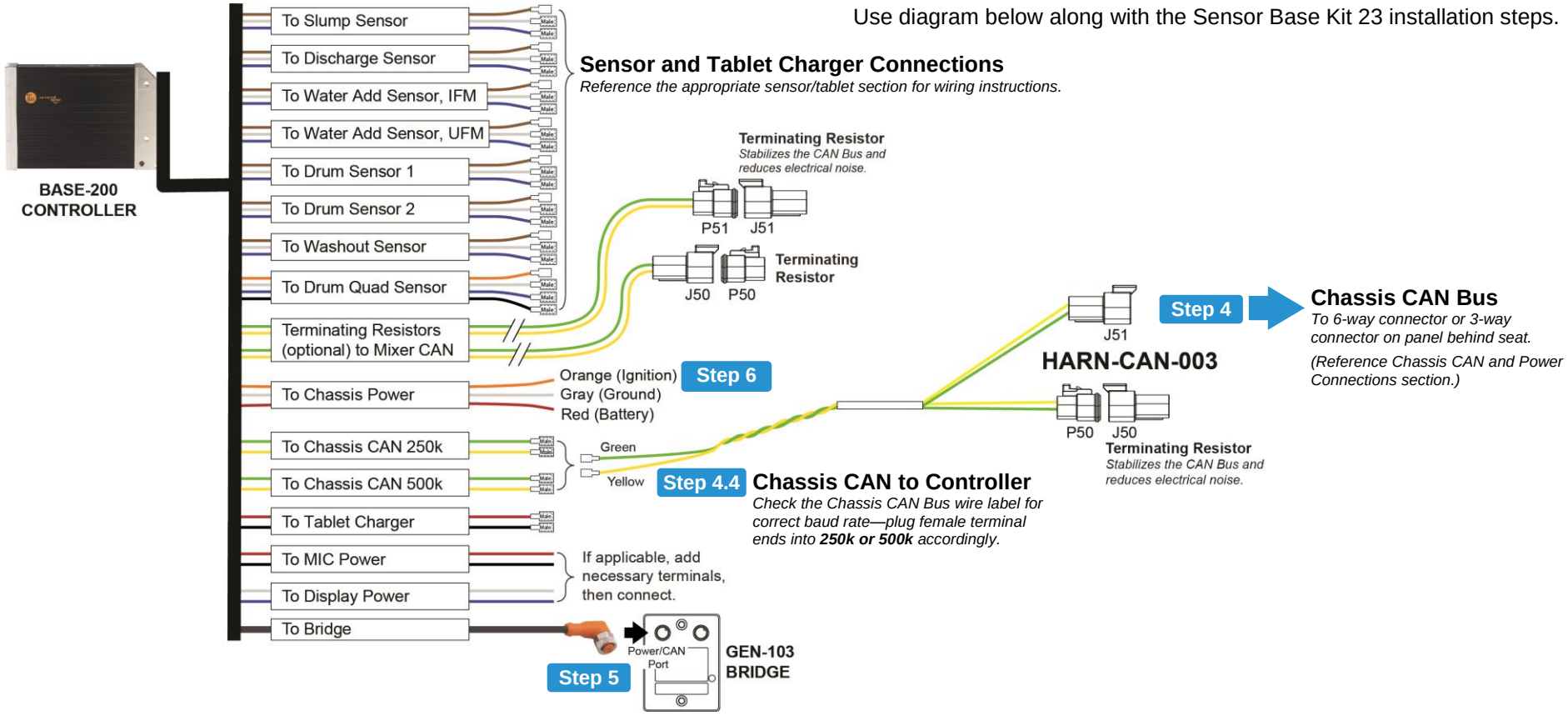
6.2. Locate the Controller harness wires labeled To Chassis Power.

6.3. The wires have TE terminal ends for a splice block. If needed, cut terminal off, strip end, and crimp on appropriate terminal provided in kit per your chassis requirement (i.e., ring terminal).

6.4. Connect wire ends to truck connectors: Orange (to ignition switch); Gray (ground) and Red (power) to C17 connector.

Wire Diagram 9 Sensor Base 23 (Flex S-Series Legacy)

Use diagram below along with the Sensor Base Kit 23 installation steps.



Step 4. Connect Controller to Chassis CAN Bus (use HARN-CAN-003)

4.1. Locate chassis CAN connector in cab (connector is labeled)—reference Chassis CAN and Power Connections section.

4.2. Plug HARN-CAN-003 into CAN Bus connection, see diagram.

4.3. **Plug a terminating resistor** into remaining connector.

4.4. Plug HARN-CAN-003 into Controller's harness—use the connection (**250k or 500k**) that matches the Chassis CAN baud rate, see diagram.

Important: When routing wires to Controller, follow an existing wire path, or remove a rubber hole plug—watch for sharp edges, use a grommet or bushing on holes to prevent wire damage.

Step 5. Connect Bridge to Controller (use Controller cable labeled To Bridge)

Plug the M12/90-degree connector into Power/CAN port on Bridge—twist onto port until hand tight.

Step 6. Connect Controller to Chassis Power, Ignition, and Ground (use wires labeled To Chassis Power)

6.1. Locate chassis connections for battery power, ignition, and ground—connections are labeled. **Always connect power or ground last.**

6.2. Locate the Controller harness wires labeled To Chassis Power.

6.3. The wires have TE terminal ends for a splice block. Cut terminals off, strip ends, and crimp on appropriate ring terminals.

6.4. Make connections to fuse box.