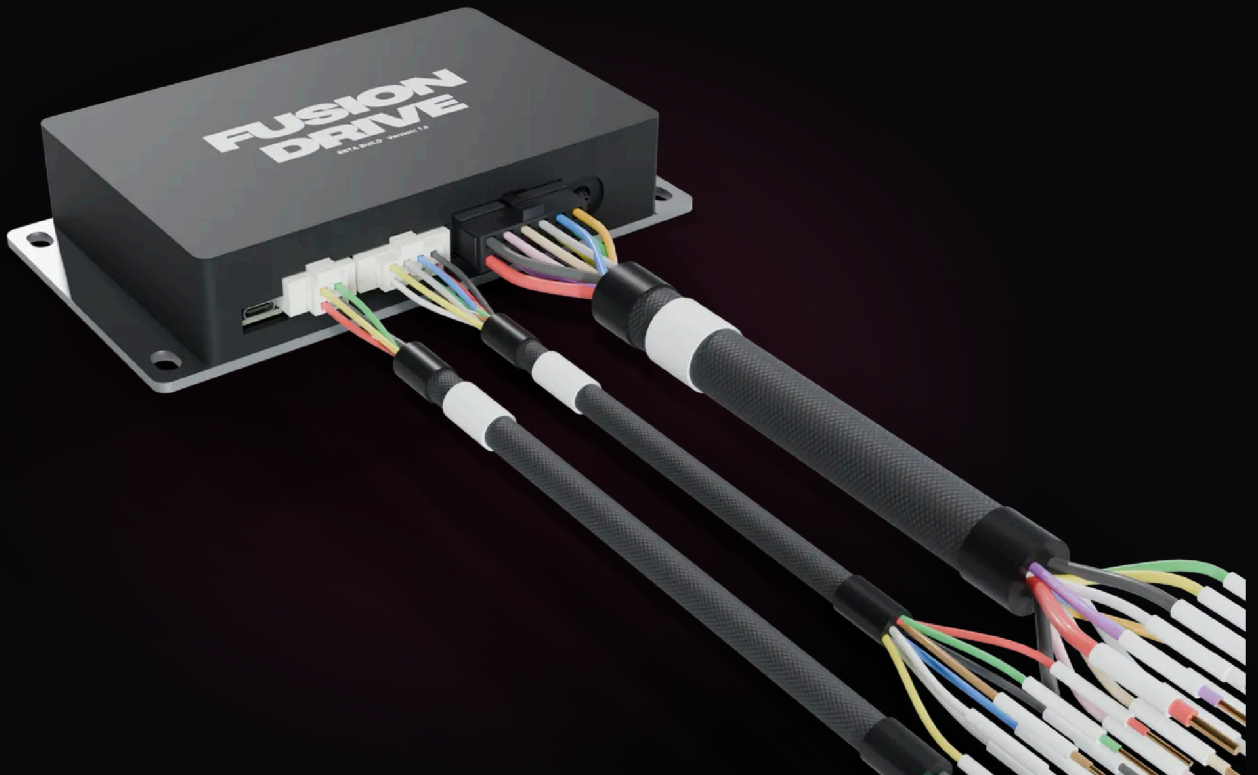




— EXACT-MODEL INSTALLATION GUIDE

AEM 30-0301

Bring your measurements into FusionDrive. Retain your instruments, migrate a display or connect a compatible sensor.



Contents

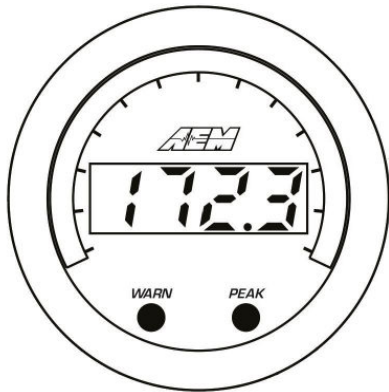
1	Identify your exact unit	2
	Choose the result you want	
2	Wiring diagrams	3
	W1 · Retain the pressure gauge - dedicated analog logging path	
3	Route A - keep the existing system	6
	Prepare the connection	
4	Configure the measurement in the FD app	7
	Calibration check points	
5	Route B - replace the display or migrate the sensor	9
	Keep these functions · Audit what disappears	
6	Automations and useful tuner logs	10
	One controlled example · Session setup	
7	Commission and release the installation	11
8	Sources and image attribution	12

1

— AEM 30-0301

Identify your exact unit

Match AEM 30-0301, the 100 psi / 7 bar gauge. Similar X-Series gauges use different ranges. This manual deliberately uses the gauge's output, not an assumed calibration for whichever sender happens to share its connector.



AEM 30-0301 X-Series 100 psi pressure gauge - 100 psi / 7 bar / manual 10-0301, 23 March 2020, original OEM identification illustration/photo.

This is an independent FD Design LS installation design for local review. It includes researched connector functions and setup procedures; it does not certify that this physical combination has passed bench or vehicle tests. Match the named manual revision before terminating a wire. Product names and the attributed identification image describe the equipment, not a manufacturer endorsement.

1.1 Choose the result you want

Route	What FD adds	Hardware ownership
Keep the existing setup	One named measurement in FD, logs overlaid with OBD/controllers, supported local rules	Existing sensor/controller keeps its original job
Replace the visible instrument	FD becomes the viewport and logger; required warnings are deliberately recreated	The wideband or sender electronics still need a qualified owner

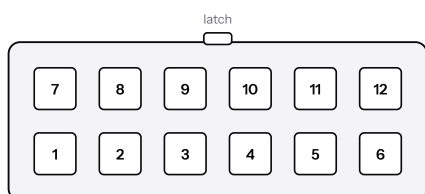
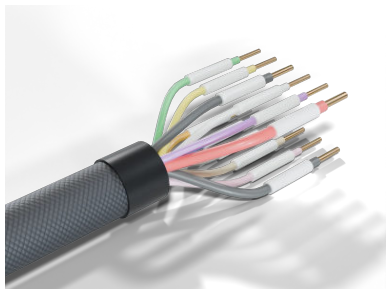
2

— AEM 30-0301

Wiring diagrams

Start here for the actual wire connections. First locate the FD leads, then choose the drawing for the route you are installing.

Harness B • J6 • 12-way

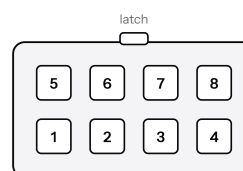
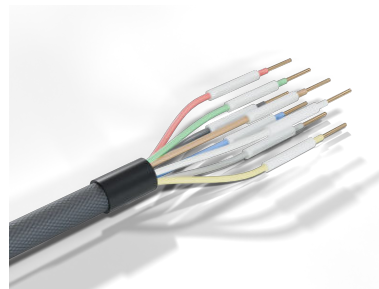


Bottom row, left to right: 1 BATT+ · 2 AUX1 · 3 IGN · 4 GND · 5 CAN2 H · 6 CAN2 L
Top row, left to right: 7 GND · 8 AUX2 · 9 OUT4 · 10 OUT3 · 11 OUT2 · 12 OUT1

Looking into the plug's mating face with the latch at the top

Original FusionDrive harness reference. Look into the plug mating face with the latch at the top. Wire drawings show logical terminal positions.

Harness C • J8 • 8-way



Bottom row, left to right: 1 IN1 · 2 IN2 · 3 IN3 · 4 +5V OUT
Top row, left to right: 5 IN4 · 6 IN5 · 7 IN6 · 8 GND

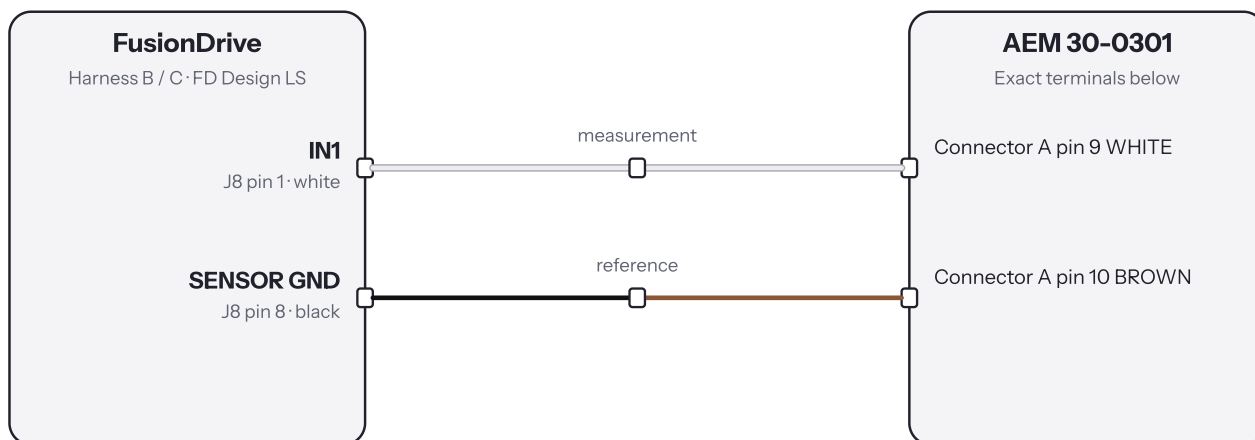
Looking into the plug's mating face with the latch at the top

Original FusionDrive harness reference. Look into the plug mating face with the latch at the top. Wire drawings show logical terminal positions.

Wire colours match the FD flying leads; the accessory segment uses its documented colour where known. A small sleeve marks an insulated splice. Match the lead label and cavity number. Harness B AUX1/AUX2 are low-side ground sinks. OUT1–4 supply positive voltage from the dedicated feed. Harness C inputs accept conditioned 0–5 V signals. Never join competing supplies or output drivers.

1. W1 • Retain the pressure gauge – dedicated analog logging path

2.1

W1 • Retain the pressure gauge - dedicated analog logging path

Retain the pressure gauge - dedicated analog logging path

Terminal-to-terminal wiring schedule

From	To	Signal / electrical condition
Connector A pin 9 WHITE	FD J8 pin 1 IN1	measurement 0-5 V bounded by model calibration
Connector A pin 10 BROWN	FD J8 pin 8 GND	reference signal ground

OFF / released: Accessory off/fault: data unavailable or explicitly excluded after qualification.

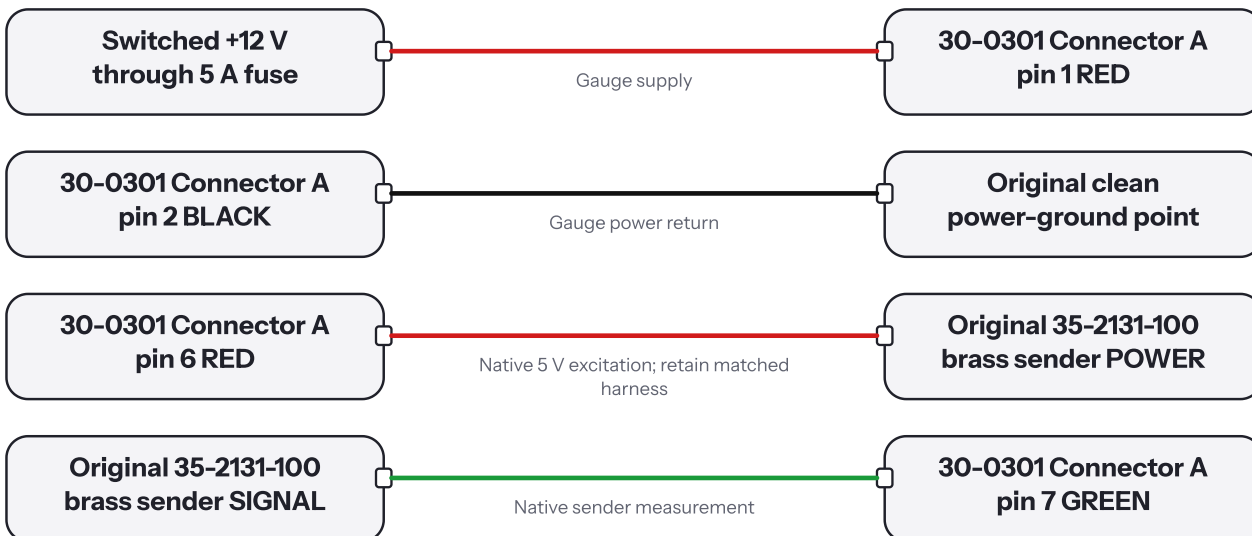
ON / active: Accessory healthy: FD reads the dedicated logging output; original receiver still works.

Qualification: No sender-excitation wire or competing active output may join J8.

Accessory-side connections - 1

AEM 30-0301 · accessory-side connections

Accessory connections for the selected route. Grey bands are complete looms; blue dashes are pressure hoses.



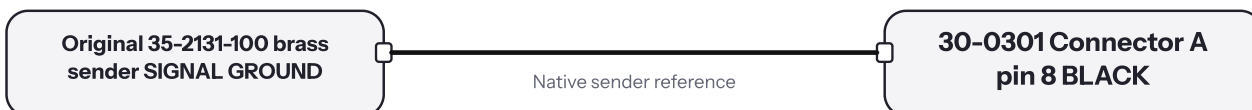
Match the exact harness/revision in the source manual. Unspecified wire colours are drawn black.

Complete the accessory-side circuit for the selected route. Retain or transfer connections as specified in the installation steps; do not join competing supplies or output drivers.

Accessory-side connections - 2

AEM 30-0301 · accessory-side connections

Accessory connections for the selected route. Grey bands are complete looms; blue dashes are pressure hoses.



Match the exact harness/revision in the source manual. Unspecified wire colours are drawn black.

Complete the accessory-side circuit for the selected route. Retain or transfer connections as specified in the installation steps; do not join competing supplies or output drivers.

3

— AEM 30-0301

Route A - keep the existing system

Keep the gauge, its supply and the sender circuit intact. Pin 7 green is the gauge's sensor input; pins 6 and 8 belong to that sender circuit. They are not the logging pair used here. Preserve the gauge's own pressure warning and note whether its display is set to psi or bar.

The worked FD channel is gauge pressure at the actual sensor port. A fuel rail measurement is not automatically differential fuel pressure, and neither a rail nor a WMI line pressure trace proves that a nozzle delivered the intended fluid quantity.

3.1 Prepare the connection

- 1 Photograph the module label, sensor identity and both connector faces. Record the exact firmware/manual revision, calibration and every existing receiver on the signal.
- 2 Isolate actuator outputs and switch off power before changing wiring. Identify the FD LS connector by cavity markings, not by visual left-to-right order in a photograph.
- 3 Reserve IN1 for this worked example. If occupied, choose another IN and translate its physical pin: IN2/J8-2, IN3/J8-3, IN4/J8-5, IN5/J8-6, IN6/J8-7. Do not silently reuse an occupied source.
- 4 Connect **Connector A pin 9 WHITE to FD IN1 / J8 pin 1** and **Connector A pin 10 BROWN to FD J8 pin 8**. Leave FD J8 pin 4 unconnected for this logging-output route.
- 5 Preserve the existing controller's power-ground path. A signal reference is not a high-current return for pumps, heaters or solenoids. Document the joining point and test ground offset with accessories switching on dummy loads.
- 6 Provide strain relief, proper terminals and protection from heat/moisture. Label both ends with the product and signal name. Do not unplug a required ECU or gauge circuit merely to make the FD connection convenient.

The drawing names electrical terminals. It is not a universal mating-face view. The installer must check the actual harness orientation and the original manufacturer connector illustration before assembly.

4

— AEM 30-0301

Configure the measurement in the FD app

Current app workflow: Configure this installation from its function in Settings. Controls provides live actions and the Dashboard provides glance controls; use a card's edit menu to return to setup. A configured output remains visible even when disabled. Enabled rules operate their assigned enabled outputs automatically; there is no extra output mode to select. Live Off, On or duty takes over a generic output until you choose Resume automation. Setup keeps the electrical limits, calibration and response settings. Assigned boost, WMI and nitrous outputs use their controller-specific actions, preserving sensor protections and any paired fuel/stage logic. Nitrous Arm allows its configured activation conditions to operate; it is not an unconditional spray command.

Setup and vehicle data: Starting presets remain editable; Add Sensor includes calibration and fine tuning before Create. Use dedicated IGN, fresh running-engine OBD evidence, or both for vehicle activity; a dedicated IGN wire is optional when valid OBD evidence is available. If the pressure hose is unused, explicitly select OBD pressure in setup. A valid atmospheric sensor reading cannot identify a disconnected hose. These app choices do not change the product-specific electrical compatibility or limitations described below.

Use real device mode. The following configuration belongs to the ESP, with the phone and portal acting as editors and views. Save/read-back is part of the procedure.

- 1 Open Sensors and tap the empty IN1 card. Confirm the slot header says IN1 / J8 pin 1. Choose Sensor type **0-5 V Generic**, Type **Analog**, temporary Unit **V**, enter **Fuel rail pressure - AEM 30-0301**, and tap **Create**. The plus button uses the first free input automatically; it does not offer a separate pin picker.
- 2 Open the card's Edit action. Set Unit **psi**, Additional voltage scale **1**. The FD input divider is already compensated; do not multiply this reading again.
- 3 Under Calibration, enter Voltage Range Min V **0.5**, Max V **4.5**; Value Range Min **0**, Max **100**. These values apply to the exact documented/default output described here.
- 4 Set a useful Display Range and Show on Dashboard if wanted. Display limits do not define electrical validity. For programmable outputs, change this calibration if the saved controller curve differs.
- 5 Save, wait for the device acknowledgement, refresh and reopen Edit. Verify the actual stored endpoints and unit; a screen containing an unsaved draft is not acceptance.
- 6 Compare Connector voltage with a meter referenced to J8 sensor ground. Then compare Current Value with the original instrument or a traceable pressure/mixture reference at several stable points.
- 7 Record Acquisition age. Test missing power and signal. A connected wire with an in-range voltage is not proof of a healthy source.
- 8 Reboot FD with loads isolated, reconnect and check the saved configuration. Disconnect the phone and verify any intended local rule remains configured. The ESP retains the configuration; it cannot create phone log samples while no phone is receiving them.

4.1 Calibration check points

Voltage at the FD connector	Expected mapped value
0.5 V	0 psi
2.5 V	50 psi
4.5 V	100 psi

These are arithmetic checkpoints, not measured bench results. Include intermediate operating points, not only endpoints. Record tolerances and supply/ground conditions. This is gauge pressure; do not relabel it as absolute manifold pressure.

5

— AEM 30-0301

Route B - replace the display or migrate the sensor

To remove the gauge completely, first identify the actual sender by part number, pressure range, excitation and transfer function. The kit sender is not automatically the stainless 30-2130-150. This guide does not wire that unidentified sender straight into FD. A documented replacement path is a dedicated, appropriately rated sensor using its own FD manual; remove the gauge's sensor supply before the new FD supply is introduced.

5.1 Keep these functions

- Original gauge and warning setting
- Original sender excitation/reference circuit
- Gauge logging output and return
- Pressure plumbing and its mechanical rating

5.2 Audit what disappears

- Independent pressure display and its warning if the gauge is removed
 - Original sender excitation if the gauge supplies it
 - Gauge peak/recall and face-button controls
- 1 Save the working Route A log and configuration first. It provides a reference before anything is removed.
 - 2 Write an ownership list for sensor excitation, heater/conditioning, calibration, alarm, display, ECU feedback and logging. Give each required function one owner.
 - 3 Disconnect only the component being replaced. Never connect two active sensor supplies or two output drivers together. A removed display is not evidence that the underlying controller can be removed too.
 - 4 Install the qualified retained/replacement hardware and repeat the FD calibration and failure checks. Keep service access to calibration/status controls.
 - 5 Recreate any required no-phone warning using an independently verified physical indication. A phone notification is unavailable if the phone is absent.
 - 6 Mark every original function retained, replaced, deliberately omitted or still unresolved. Stop the conversion if a function required by the tune is unresolved.



— AEM 30-0301

Automations and useful tuner logs

The documented gauge output is valid from 0.5 V to 4.5 V; outside that range it indicates an error. FD allows a margin and clamps the calibrated result, so Input Valid alone does not certify the gauge output is healthy. Require qualified raw-voltage limits as well. A plausible voltage can survive certain wiring faults: qualify source supply loss, open logging return and ground offset. A fuel-pressure permission also needs a tuner-approved measurement location, operating envelope and invalid-source release.

6.1 One controlled example

With real loads disconnected, create a disabled rule in Automations named **Fuel rail pressure - AEM 30-0301 - review trigger**. Choose **ALL conditions (AND)**. Select the configured measurement, compare it in **psi** against a tuner-chosen test threshold, and require the source's **Valid** field to equal **ON**. Use its **Connector voltage** and **Acquisition age** fields for qualified electrical limits and a tested age limit in milliseconds; include accessory-ready/fault gates where available. These appear under the configured sensor's name, backed by Input 1 Valid / Voltage / Age for this IN1 example. Stay within the device-reported condition limit; never omit a required gate to make a rule fit. A threshold example is not a tune recommendation.

Use an isolated dummy output for the first action test. For a qualified binary AUX permission, start the output at 0, choose **AUX1·Duty** (or that output's configured name·Duty) at 100% while the rule is true and **Restore Previous Value When False**. Its captured prior value must be 0; no other rule/manual control may compete for it. Keep release delay at 0 for a safety-related permission. Missing required source data must remove the permission; verify this independently of a normal threshold crossing. Do not confuse a generic AUX command with measured fluid delivery or current.

Bind this measurement in a controller section only when its source selector accepts the quantity and the units match. Fuel pressure, boost pressure, bottle pressure, AFR, lambda and measured flow are not interchangeable merely because each is a number. Never use an invalid or absent reading to satisfy a healthy-source condition.

6.2 Session setup

In Data Log settings include the named measurement, raw input voltage and acquisition age where exposed; add the relevant vehicle RPM/TPS/MAP, boost target/requested duty, WMI or nitrous state and automation transitions available on this build. Label command/request channels separately from actual pressure, current or flow. Choose active/idle rates and confirm achieved timestamps after leaving the live screen. Source sample rate, BLE delivery and phone backgrounding can all limit useful samples.

Record the exact controller/sensor part, calibration, pressure point or AFR convention, and any hardware changes in the session notes. Overlay the modification trace with the ECU data to investigate what happened and when. Cloud backup/Intelligence can aid review; it does not turn a requested command into proof of delivered output or a prediction into certainty.



— AEM 30-0301

Commission and release the installation

Test to perform	Required observation	Evidence to record
Existing setup before FD	Original gauge/ECU behaviour documented	Baseline log and photos
Low/middle/high stimulus	Mapped value matches the documented transfer within the agreed tolerance	Meter/reference readings
Accessory power absent	Missing/unqualified data does not grant permission	State and release time
Open signal/reference	Defined safe behaviour or an explicitly unresolved hold point	Measured voltage and rule state
Fault/warm-up	Native error is not accepted as healthy measurement	Original status and FD traces
FD restart / phone removed	Saved configuration restored; local behaviour verified	Reconnection/read-back record
Simultaneous dummy loads	No false measurement from ground noise	Voltage trace and timestamped log

Do the first checks with non-operating loads and an independent instrument. A function in the app, a saved acknowledgement and a passing arithmetic example are different evidence from an installed electrical test. For a controlled vehicle run, record the mechanical installation, permitted operating envelope and tuner/installer acceptance.

Installation record	Fill in before release
Vehicle / FD serial / LS board revision	_____
FD firmware / iOS build	_____
AEM 30-0301 X-Series 100 psi pressure gauge identity and manual revision	_____
Used IN / optional CAN signals / unit / calibration	_____
Fault and latency test file	_____
Required functions retained or lost	_____
Installer / tuner / date	_____



— AEM 30-0301

Sources and image attribution

[OEM] 100 psi / 7 bar / manual 10-0301, 23 March 2020, pages 2, 7-8.

https://documents.aemelectronics.com/techlibrary_30-0301.pdf

Identification image: original manufacturer illustration/photo extracted from the matching manual, page 3. Shown to identify the product; terminal orientation must be checked against the actual connector and wiring schedule.

FD implementation evidence: HardwareMap.swift; SensorsView.swift; SensorManager.swift; CANBusConfigurationView.swift; CANDecodeEditorView.swift; AutomationEditorView.swift; DataLog/LogSettingsView.swift; docs/V1_LS_HARDWARE_LIMITATIONS.md. The library records design review; it contains no assertion of completed physical compatibility testing.



Questions?

Documentation · fusiondrive.io/docs

Support · in the app: [More](#) → [Settings](#) → [Device & firmware](#) → [Report an Issue](#)

Review library · [Local FD V3](#) / [accessory-integration](#) / [model-guides](#)

FusionDrive switches real current to real loads and can control boost, water/methanol injection and nitrous. Fuse every feed and every load, respect the ratings in the specifications, and set failsafes before you drive. Configure and tune with the vehicle stationary. The installer is responsible for compliance with local vehicle regulations. Independent local review draft. Exact-model electrical compatibility and the commissioning tests in this guide have not received physical sign-off. Product photographs and manufacturer names identify equipment only; no manufacturer endorsement is implied. Follow the matching original manual and the qualification requirements for each proposed interface. No universal replacement or load-rating approval is given.