



FUEL MANAGEMENT SYSTEM



NXFM200

**MADE IN
USA** 
WITH GLOBAL MATERIALS

GR
GORMAN-RUPP
COMPANY

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Download the FMS App



**Get Help Installing NXFM200
with the FMS Installer App**



**Get Support from the FMS
Help Center**

Welcome to Fill-Rite® FMS! For tech support call: 833-483-5859

NXFM200 Site Controller

This installation guide contains all of the information you need to install your hardware, create your online account, and begin using the Fill-Rite FMS.

Before beginning physical installation of your Fill-Rite FMS Site Controller, create an account at fms.fillrite.com and register your device's serial number to your account. Physical installation cannot be completed without an online account being created.

If you're using Fill-Rite FMS for the first time, we encourage you to run through the guided account setup by clicking the button in the top left of the Fill-Rite FMS homepage. This setup will walk you through the creation of your first site, upload drivers and vehicles, and orient you to the features of the Fill-Rite FMS web portal.

If you have any questions or need help with installation, contact your local Fill-Rite FMS distributor, visit fillrite.com/fms, or call 833-483-5859.

Limited Warranty Policy

Fill-Rite warrants the goods manufactured shall be free from defects of materials and workmanship. Specific warranty details for individual products can be found at fillrite.com.

Privacy Statement

Fill-Rite is committed to protecting user's privacy. For more information about Fill-Rite FMS's privacy policy, please review our full terms and conditions at fillrite.com/fms.

NXFM200 Compatibility & Specs

Power Requirements	85-305V AC, 50/60Hz, 207W 8-50V DC*
Pump Control Ratings	1HP 125V AC 2HP 240V AC 125V AC 16A General Purpose 240V AC 30A General Purpose 8-50V DC 40FLA/90LRA 8-50V DC 40A General Purpose
Dimensions	H: 13.24" W: 13.24" D: 7.72"
Weather Ratings	NEMA 1, 2, 3, 3R, 3X, 3RX, 3S, 3SX, 4, 4X, 5, 12, 13
Temperature Ratings	-4° F to 122° F (-20° C to 50° C) UL Installations
Pulser	Power Supply: 12V DC, 100mA Rate: 1:1 to 10,000:1 Speed: 120,000 pulses per minute (2000Hz) Duty Cycle: 50% Contact: (example: reed switch, contact close) Open Collector: (wiring example: 12V DC, signal, ground)

*DC requires a Class 2 power source (see page 5)

Before Installation - Online Account Setup

A fms.fillrite.com account serves as your dashboard to monitor your fuel, manage access permissions, run reports, and control the Fill-Rite FMS. Setting up an online account is easy, and is the first step to activating your Fill-Rite FMS.

Before installation, instruct your Fill-Rite FMS administrator to create a new account at fms.fillrite.com (if they have not already created one). The setup panel will guide administrators through getting their account online. To complete setup, administrators will need:

- The Serial Number of each piece of Fill-Rite FMS hardware being installed, found on the label inside the enclosure
- The street address of each site where Fill-Rite FMS hardware is being installed
- The tank dimensions at each site
- A driver list and vehicle list

Create an Account at fms.fillrite.com

Step 1: Go to fms.fillrite.com with any web browser and click the "Sign Up" button at the bottom of the screen

Step 2: Fill out your company and contact information, and click the "Sign Up" button

Step 3: In the top left corner of the page, underneath the Fill-Rite FMS logo, click the "Setup" button. The Setup page will walk you through all of the necessary steps and features to get your system going. A few of these steps are mandatory for installation, while others can be set up later. For install, here's what you need:

1. Add a Default Payment Method...**Tip:** Go to Settings > Billing in the left navigation
2. Add a Site...**Important:** Ensure that the location address and coordinates for the site are correct
3. Add a Tank...**Tip:** For installation and testing purposes, make sure you've added a tank to your installation site. All other details can be edited at anytime
4. Add Hardware and Configure Relay. Once you've added the hardware, go to Sites > Select a site > Select the "Configuration" tab > Click the settings icon for the relay you want to configure, then select "Configure Relay"...**Important:** To test the app, your Site Controller must be activated and the relay must be configured to your tank

Before Installation - Hardware and Install Warnings

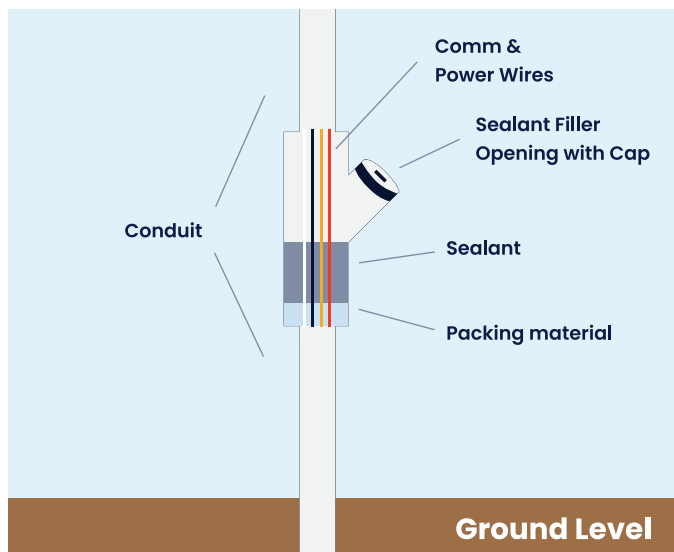
Installations must be in accordance with the National Electrical Code (NFPA No.70) and the code for Motor Fueling Dispensing Facilities and Repair Garages code (NFPA No. 30A). The installer is responsible for investigating and following any applicable state and local codes.

RESTRICTED ACCESS: Access can only be gained by service persons or by users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken. Access is through the use of a tool, lock and key, or other means of security, and is controlled by the authority responsible for the location.

Hazardous Area - Where not to mount Site Controller or Expansion Module

DO NOT mount the Site Controller, or any Fill-Rite FMS device within the hazardous / classified area: Class I Div 1 (Zone 1) or Class I Div 2 (Zone 2)

Figure 1

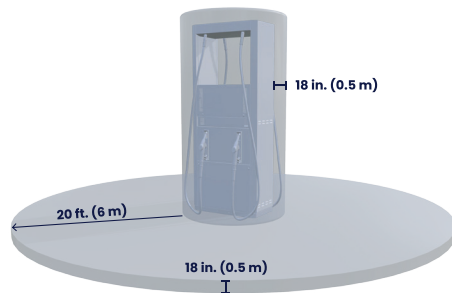


Wireless Warnings

The total wireless range of the Site Controller is 75' in line of sight. To ensure the best performance, do not install the Site Controller in a location where the signal can be blocked or degraded.

Hazardous Area Examples

Classified Areas Adjacent to Dispensers

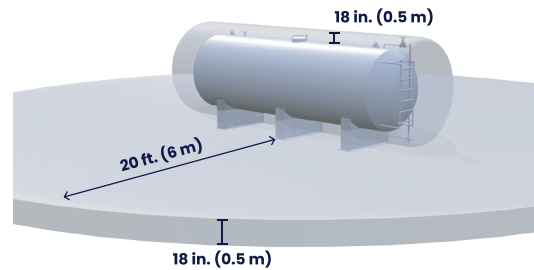


Additional Warnings

Battery Replacement: The Site Controller contains a rechargeable battery. If the battery needs to be replaced, please contact Fill-Rite or have an authorized technician service it.

External Devices: All peripheral equipment connected to the Site Controller must be UL or CSA listed.

Classified Areas Adjacent to Dispenser Mounted on Above-Ground Storage Tank



Before Installation - Site Survey

Complete the following steps before beginning installation of Fill-Rite FMS hardware. Failure to perform the below checks may result in the Fill-Rite FMS or fuel equipment being damaged or not working as intended.

1. Turn off all power to the pump and tank
2. Ensure that your installation location meets the following physical requirements:
 - Hardware will be mounted outside of hazardous zones - see warnings for more information
 - **Hardware dimensions for mounting:**
NXFM200 - 12.6" H x 12.6" W x 7.72" D
 - Installation location has clear line of site to pump, or is otherwise placed in location where wireless signal will not be blocked or degraded
 - Installation location has no wiring obstructions
 - Installation has good cellular connectivity
3. Ensure that your site power supply and fuel equipment is compatible with Fill-Rite FMS's hardware. See Compatibility / Specs for more information
4. Fuel within 75' of the Site Controller with good line of site

Before Installation - Mounting

1. Turn off all power to the pump at the breaker
2. Two of the conduit holes pictured have disposable plugs. These plugs must be removed before installation. If these conduit holes are not to be used, cap the holes with UL listed plugs
3. Attach the 2 mounting flanges to the back of the Site Controller. Then mount the Site Controller using any available fasteners

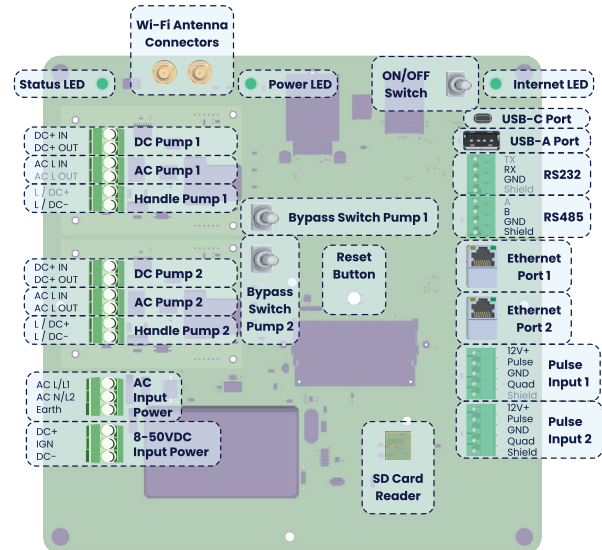
Step 2



Step 3



NXFM200 Overview

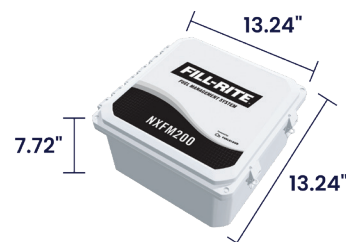


Status LED colors:

- Green: On and active
- Yellow: On and inactive

Internet LED colors:

- Green: Strong connection
- Yellow: Good connection
- Red: Poor connection
- Off: No connection



Hardware Installation Wiring

WARNING

The Expansion Module requires an external circuit breaker (AC) or fuse (DC) be connected before the input power. It is recommended that the current protection devices are located near the Expansion Module.

Wiring Requirements: All connections to the terminal board must be made using conductors rated 300V minimum.

- Tightening: Min 0.5 Nm, Max 0.6 Mn
- Type: Copper solid or stranded
- Wiring gauge: 10-30 AWG

Fill-Rite FMS Hardware Power In / Power Out

Fill-Rite FMS piggybacks power off of the Hose #1 power input. Your wiring configuration will depend on whether the pump runs on AC or DC power. **DO NOT** piggyback input or output wiring unless the wires are sized correctly via NEC.

The Site Controller can be powered in the following scenarios:

- 8 - 50 VDC Stationary
- 8 - 50 VDC Mobile
- 120 VAC 50/60 Hz

Fig. 1

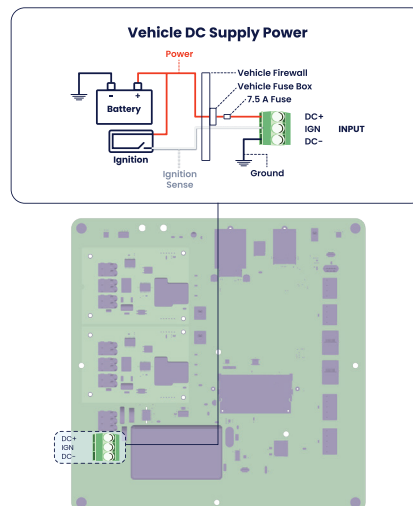
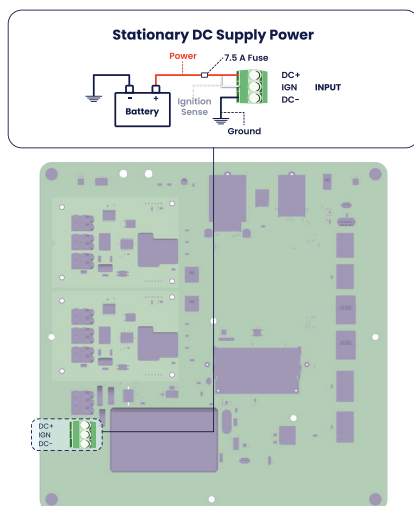
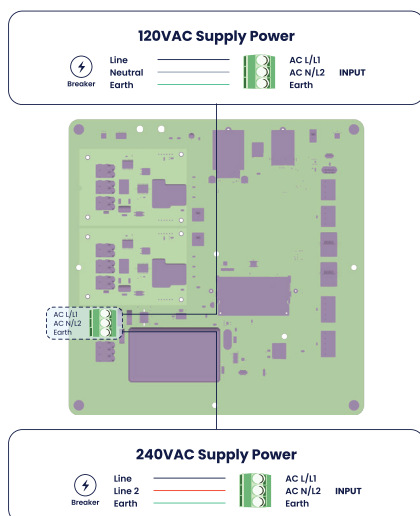


Fig. 2



DC

DC power has 8-50V DC positive and negative wires. For power input, attach the appropriate wire to the designated terminals on the side of terminals on the Fill-Rite FMS board (see Figure 1).

For mobile site applications, the Expansion Module switches the pump, PTO, or solenoid on ground. A solenoid valve should be used with a PTO, otherwise fuel can be turned on or off without control from the Fill-Rite FMS app.

For mobile site applications, the Expansion Module switches the pump, PTO, or solenoid on ground. A solenoid valve should be used with a PTO, otherwise fuel can be turned on or off without control from the Fill-Rite FMS app.

AC

AC power has a line, neutral, and ground wire. For power input, attach the appropriate wires to the designated terminal on the top bank of terminals of the Fill-Rite FMS board (see Figure 2).

For power output, attach the appropriate wires to the designated terminal on the bottom bank on terminals of the Fill-Rite FMS board as demonstrated in Figure 2.

Hardware Installation Control

The Site Controller supports 2 fueling positions. The wiring terminals for each position are located on their respective daughter boards. Figure 1 and Figure 2 only shows connections to Position 1, but both positions support the same wiring options.

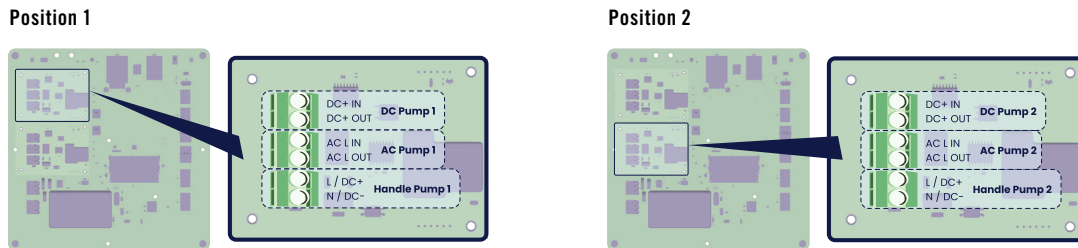
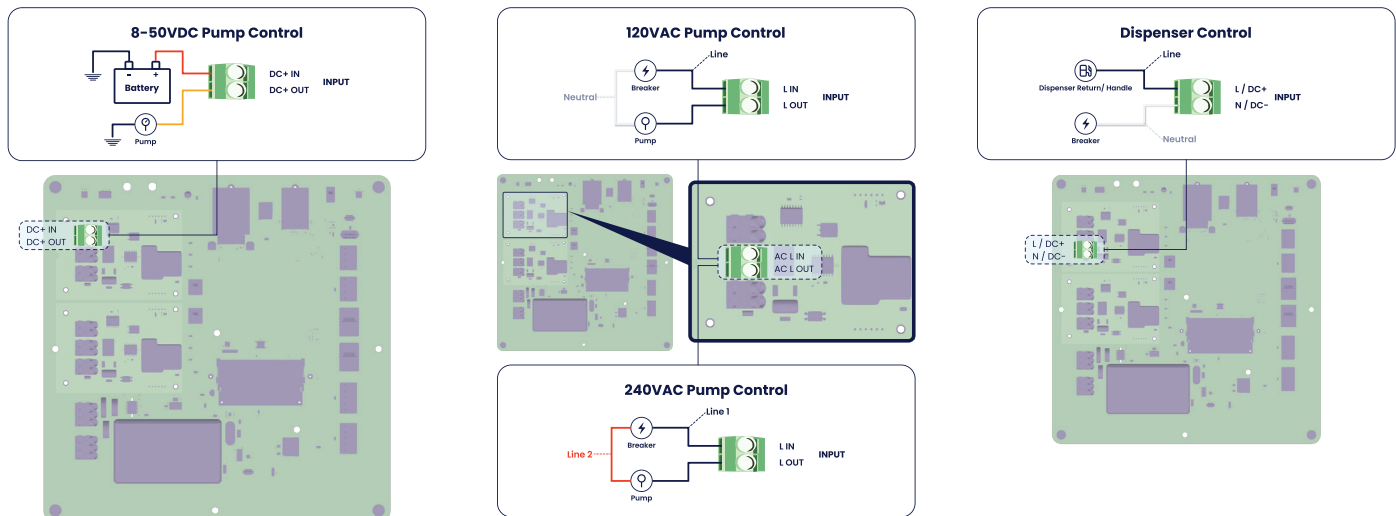


Figure 1 - DC Pump Control

Figure 2 - AC Pump Control

Figure 3 - Dispenser Control



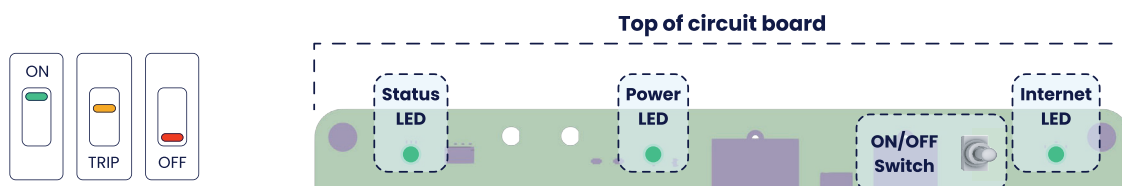
Site Controller authorizes the dispenser. The pump should be controlled by the dispenser.

Hardware Installation - Power On & Verification

After installing the Fill-Rite FMS hardware and restoring power to the pump, verify the following items:

1. Power to the Hardware:

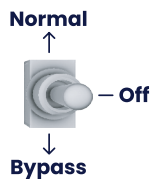
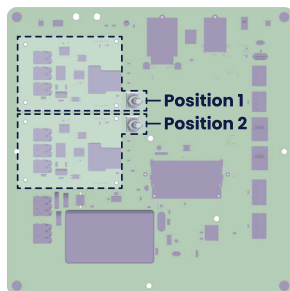
Flip the power switch to the on (up) position. Check that the LEDs are illuminated on the Fill-Rite FMS circuit board. If the board does not have power, check that the local circuit breaker has not tripped.



Hardware Installation - Power On & Verification (continued)

2. Power to the Pump:

Before testing a fueling position, make sure the corresponding switch is set to 'Normal' to ensure the pump receives power.



Normal: Pump is controlled by the app.

Off: No power will be allowed to the pump.

Bypass: Bypasses the FuelCloud app.

Note: The Fill-Rite FMS app will still work in Bypass mode.

3. Hardware WiFi:

Ensure that your Fill-Rite FMS hardware is successfully broadcasting a wifi signal. On a wifi-enabled device, you should be able to identify and join a wifi network titled "NXFM_XXXXX", where XXXXX is the last five digits of the device's serial number.

4. Test Transaction:

Have the Fill-Rite FMS administrator create a driver profile and pin code for you, and perform a test fueling using the Fill-Rite FMS mobile app. The Fill-Rite FMS app may perform a firmware update on first use.

5. Check Pulse Rate:

Confirm that the volume displayed on the Fill-Rite FMS app matches the volume of fluid being dispensed by the equipment. **If the volumes do not match, go to fms.fillrite.com, select the site in question, click on the configuration tab, and edit the pump/relay to update the pulse rate.**

Hardware Installation - Pulsers

All pulser wire should be shielded twisted pair wire (14-22AWG). Pulser wiring should not share the same conduit as pump AC power. Pulser shield must be connected to Earth on one end only.



WARNING

It's recommended that pulser wire be in a separate conduit than AC wires. If the conduit must be shared, UL-listed, twisted pair, and shielded wire must be used.

2-Wire Pulser

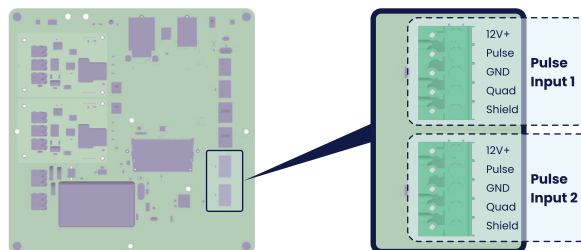
- Attach one wire to the terminal marked 'Pulse'
- Attach one wire to the terminal marked 'GND'
- Attach the pulser shield wire to the terminal marked 'Shield'

3-Wire Pulser

- Attach 12V power line from the pulser to the terminal marked '12V+'
- Attach signal wire to the terminal marked 'Pulse'
- Attach the ground wire to the terminal marked 'GND'
- Attach the pulser shield wire to the terminal marked 'Shield'

4-Wire Pulser

- Attach 12V power line from the pulser to the terminal marked '12V+'
- Attach signal wire to the terminal marked 'Pulse'
- Attach the ground wire to the terminal marked 'GND'
- Attach the signal B wire to the terminal marked 'Quad'
- Attach the pulser shield wire to the terminal marked 'Shield'



2-Wire (Passive) Pulser



3-Wire (Active) Pulser



4-Wire (Quadrature) Pulser



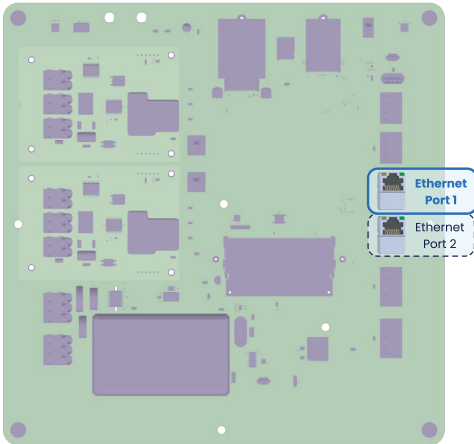
CAUTION

Connect the pulser wiring shield to the shield terminal to prevent electrical noise.

Hardware Installation - Local Network Option

The Site Controller can be connected to a local network through Ethernet Port 1 on the right side of the Site Controller board. When the Site Controller is connected to a local network, users can use their own WiFi access point instead of the Fill-Rite FMS network.

- Broadcast forwarding must be enabled for the WiFi network
- The network must have access to the internet
- If you want your Site Controller to connect to you local network wirelessly, please follow the Infrastructure Mode guide found in the online at fillrite.com/fms



Certifications / Approvals

FuelCloud, Inc.

Fill-Rite FMS - NXFM200

RATINGS:

Max Ambient Temperature Rating: 50°C

Supply: 85-305VAC 50/60 Hz 207W
8-50VDC

Control: 1HP @ 125VAC
2HP @ 240VAC
125VAC @ 16A General Purpose (2000W)
240VAC @ 30A General Purpose (3600W)
8-50VDC, 40FLA / 80LRA (2000W)
8-50VDC, 40A General Purpose (2000W)

Enclosure: NEMA 4X

For supply connection use wires rated for at least 90C (194F).
For use with equipment specified in the installation instructions.

SEE INSTALLATION INSTRUCTIONS

WARNING SIGNAL WIRING IN THIS BOX MUST BE RATED AT LEAST 300V.

CAUTION: BONDING BETWEEN CONDUIT CONNECTIONS IS NOT AUTOMATIC AND MUST BE PROVIDED AS A PART OF THE INSTALLATION.

ATTENTION: LE CABLAGE DE SIGNALISATION RACCORD É DANS CETTE DOITE DOIT CONVENIR
POUR UNE TENSION NOMINALE D'AU MOINS 300V.

ATTENTION: L'INTERCONNEXION DES CONDUITS NE SUFFIT PAS POUR ASSURER LA MISE À LA
MASSE; ELE DOIT FAIRE PARTIE INT EGRANTE DE L'INSTALLATION.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and (2) this device must accept any interference
received, including interference that may cause undesired operation.



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