

Instruction Sheet

A053Y223 (Issue 1)

3-2016

Installation Instructions for Remote Display Kit A053K028

1 Introduction

Read these instructions completely and become familiar with safety warnings, cautions and procedures before starting the installation.

The information contained within is based on information available at the time of going to print. In line with Cummins Power Generation policy of continuous development and improvement, information may change at any time without notice. The users should therefore make sure that before commencing any work, they have the latest information available.

The latest version of this instruction sheet is available on QuickServe Online (<https://qsol.cummins.com/info/index.html>).

2 Safety Precautions

2.1 General Safety Precautions

WARNING

Hot Pressurized Liquid

Contact with hot liquid can cause severe burns.

Do not open the pressure cap while the engine is running. Let the engine cool down before removing the cap. Turn the cap slowly and do not open it fully until the pressure has been relieved.

WARNING

Moving Parts

Moving parts can cause severe personal injury.

Use extreme caution around moving parts. All guards must be properly fastened to prevent unintended contact.

WARNING

Toxic Hazard

Used engine oils have been identified by some state and federal agencies to cause cancer or reproductive toxicity.

Do not ingest, breathe the fumes, or contact used oil when checking or changing engine oil. Wear protective gloves and face guard.

⚠ WARNING

Electrical Generating Equipment

Incorrect operation can cause severe personal injury or death.

Do not operate equipment when fatigued, or after consuming any alcohol or drug.

⚠ WARNING

Toxic Gases

Substances in exhaust gases have been identified by some state and federal agencies to cause cancer or reproductive toxicity.

Do not breathe in or come into contact with exhaust gases.

⚠ WARNING

Combustible Liquid

Ignition of combustible liquids is a fire or explosion hazard which can cause severe burns or death.

Do not store fuel, cleaners, oil, etc., near the generator set.

⚠ WARNING

High Noise Level

Generator sets in operation emit noise, which can cause hearing damage.

Wear appropriate ear protection at all times.

⚠ WARNING

Hot Surfaces

Contact with hot surfaces can cause severe burns.

Wear appropriate PPE when working on hot equipment and avoid contact with hot surfaces.

⚠ WARNING

Electrical Generating Equipment

Incorrect operation and maintenance can result in severe personal injury or death

Make sure that only suitably trained and experienced service personnel perform electrical and/or mechanical service.

⚠ WARNING

Toxic Hazard

Ethylene glycol, used as an engine coolant, is toxic to humans and animals.

Wear appropriate PPE. Clean up coolant spills and dispose of used coolant in accordance with local environmental regulations.

⚠ WARNING

Combustible Liquid

Ignition of combustible liquids is a fire or explosion hazard which can cause severe burns or death.

Do not use combustible liquids like ether.

⚠ WARNING

Automated Machinery

Accidental or remote starting of the generator set can cause severe personal injury or death. Isolate all auxiliary supplies and use an insulated wrench to disconnect the starting battery cables (negative [-] first).

⚠ WARNING

Fire Hazard

Materials drawn into the generator set are a fire hazard. Fire can cause severe burns or death. Keep the generator set and the surrounding area clean and free from obstructions.

⚠ WARNING

Fire Hazard

Materials drawn into the generator set are a fire hazard. Fire can cause severe burns or death. Make sure the generator set is mounted in a manner to prevent combustible materials from accumulating under the unit.

⚠ WARNING

Fire Hazard

Accumulated grease and oil are a fire hazard. Fire can cause severe burns or death. Keep the generator set and the surrounding area clean and free from obstructions. Repair oil leaks promptly.

⚠ WARNING

Fire Hazard

Materials drawn into the generator set are a fire hazard. Fire can cause severe burns or death. Keep the generator set and the surrounding area clean and free from obstructions.

NOTICE

Keep multi-class ABC fire extinguishers handy. Class A fires involve ordinary combustible materials such as wood and cloth. Class B fires involve combustible and flammable liquid fuels and gaseous fuels. Class C fires involve live electrical equipment. (Refer to NFPA No. 10 in applicable region.)

NOTICE

Before performing maintenance and service procedures on enclosed generator sets, make sure the service access doors are secured open.

NOTICE

Stepping on the generator set can cause parts to bend or break, leading to electrical shorts, or to fuel, coolant, or exhaust leaks. Do not step on the generator set when entering or leaving the generator set room.

2.2 Generator Set Safety Code

Before operating the generator set, read the manuals and become familiar with them and the equipment. Safe and efficient operation can be achieved only if the equipment is properly operated and maintained. Many accidents are caused by failure to follow fundamental rules and precautions.

WARNING

Electrical Generating Equipment

Incorrect operation and maintenance can result in severe personal injury or death.

Read and follow all Safety Precautions, Warnings, and Cautions throughout this manual and the documentation supplied with the generator set.

2.3 Electrical Shocks and Arc Flashes Can Cause Severe Personal Injury or Death

WARNING

Electric Shock Hazard

Voltages and currents present an electrical shock hazard that can cause severe burns or death. Contact with exposed energized circuits with potentials of 50 Volts AC or 75 Volts DC or higher can cause electrical shock and electrical arc flash. Refer to standard NFPA 70E or equivalent safety standards in corresponding regions for details of the dangers involved and for the safety requirements.

Guidelines to follow when working on de-energized electrical systems:

- Use proper PPE. Do not wear jewelry and make sure that any conductive items are removed from pockets as these items can fall into equipment and the resulting short circuit can cause shock or burning. Refer to standard NFPA 70E for PPE standards.
- De-energize and lockout/tagout electrical systems prior to working on them. Lockout/Tagout is intended to prevent injury due to unexpected start-up of equipment or the release of stored energy.
- De-energize and lockout/tagout all circuits and devices before removing any protective shields or making any measurements on electrical equipment.
- Follow all applicable regional electrical and safety codes.

In summary:

- Do not tamper with or bypass interlocks unless you are authorized to do so.
- Understand and assess the risks - use proper PPE.
- Make sure that an accompanying person who can undertake a rescue is nearby.

3 Instruction

3.1 Installation of the Remote Display Kit

This instruction sheet describes the installation of remote display kit #A053K028 for use with a control board on generator set models C13N6H, C17N6H, and C20N6H.

⚠ WARNING

AC voltages and currents present an electrical shock and arc flash hazard. Voltages up to 600 VAC can be present inside the electrical enclosures. Incorrect installation, service, or replacement of parts can result in severe personal injury, death, or equipment damage. Only technically qualified and trained personnel should perform service procedures.

⚠ WARNING

Ignition of explosive battery gases can cause severe personal injury or death. Arcing at battery terminals, operation of light switches, operation of other equipment, open flame, pilot lights, and sparks can ignite battery gas. To avoid injury:

- ***Make certain the battery area has been well-ventilated before servicing the battery.***
- ***Make certain hydrogen from the battery, engine fuel, and other explosive fumes are fully dissipated.***
- ***Do not smoke, or switch the trouble light ON or OFF near a battery.***
- ***Wear protective clothing and safety goggles.***
- ***Discharge static electricity charge from your body before touching batteries by touching a grounded metal surface.***

NOTICE

The display mounting distance from the control board is limited to a cable distance of 4000 ft (1219 m).

1. Make sure the generator set is shut down and disabled.
 - a. Press the generator set's red STOP button on the local display to stop the generator set. Allow the generator set to thoroughly cool to the touch.
 - b. Turn off and disconnect the battery charger from the AC source before disconnecting the battery cables (if equipped).
 - c. Disconnect the negative (-) cable from the battery and secure it from contacting the battery terminals to prevent accidental starting.
2. Use the footprint template in the figure below for drilling mounting holes and cutout.

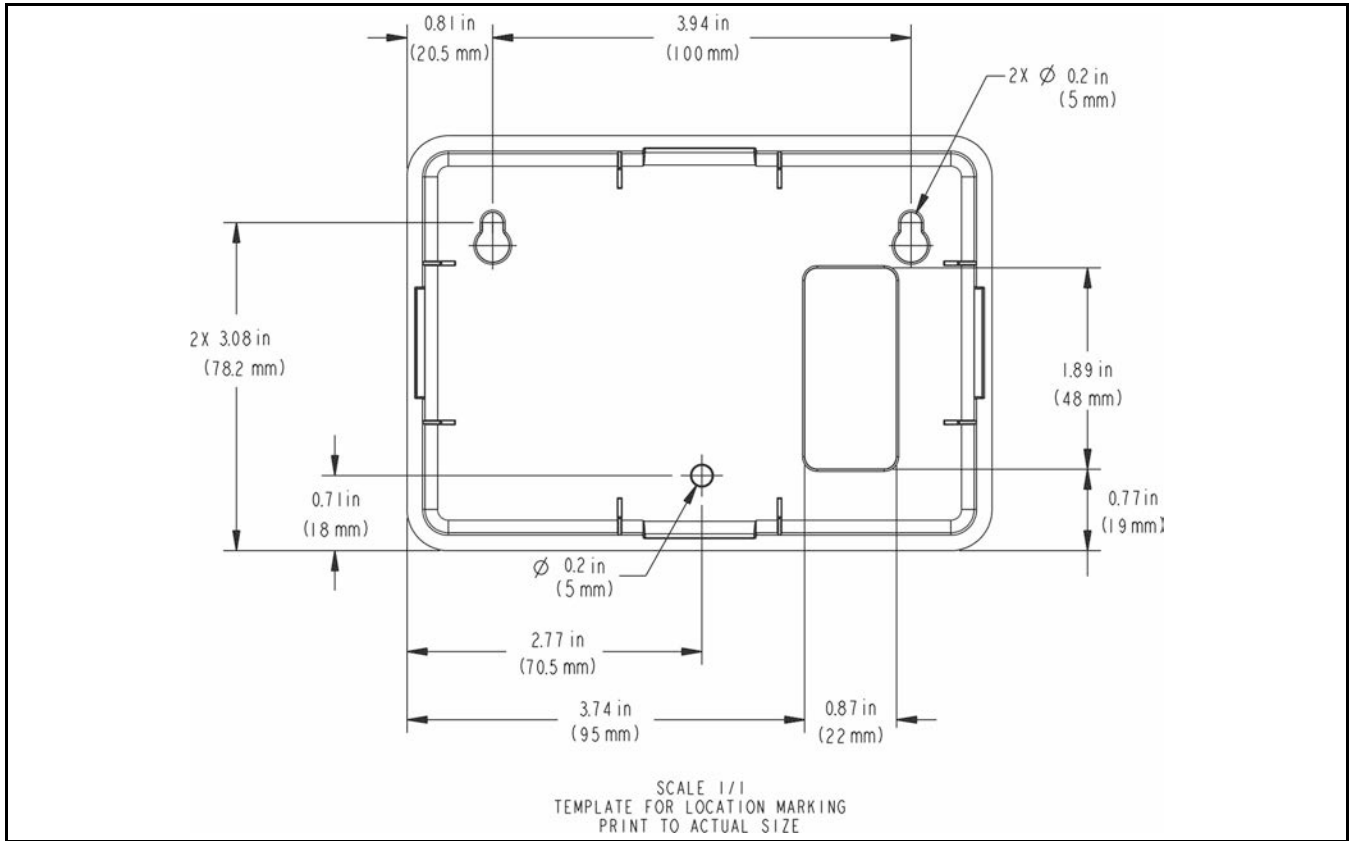
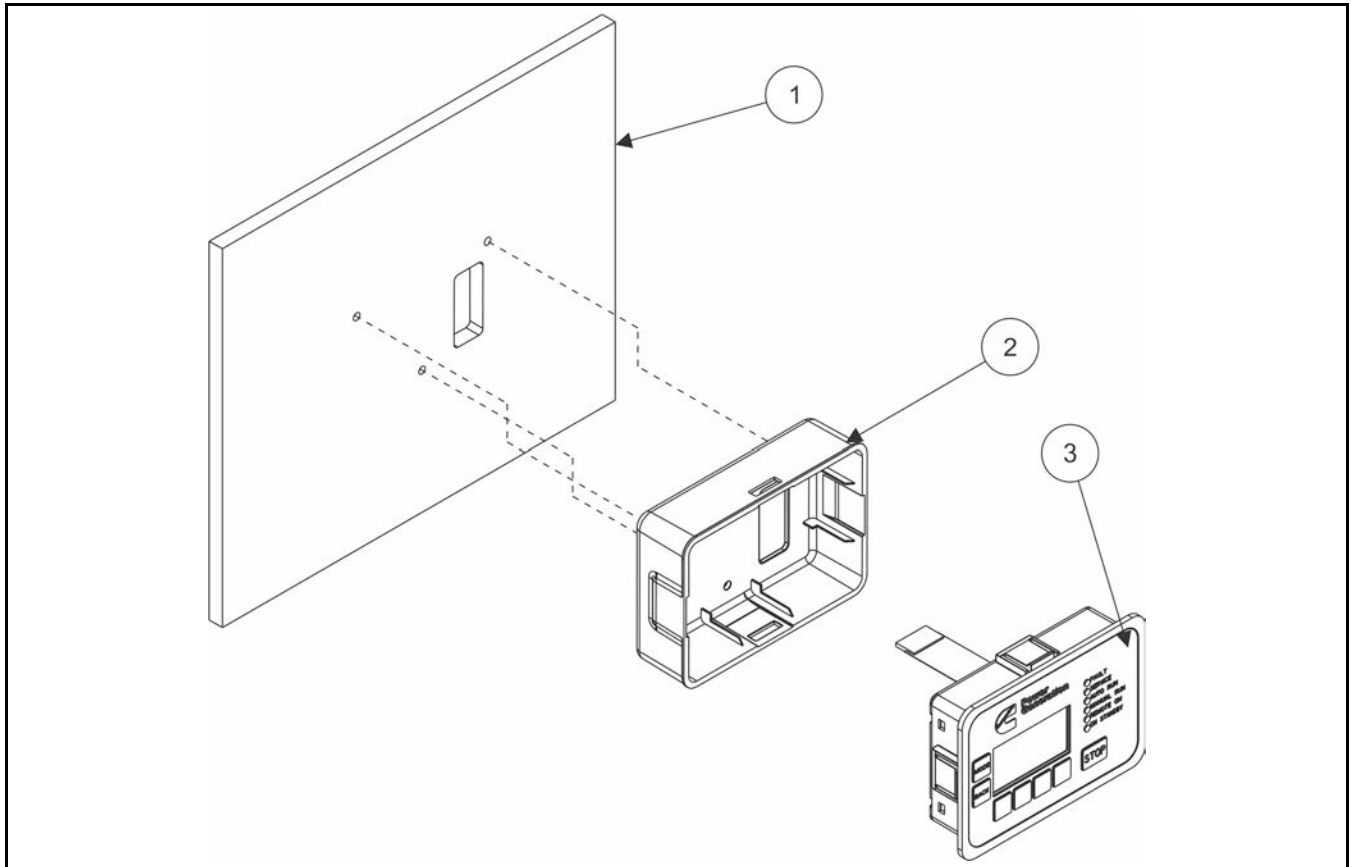


FIGURE 1. DISPLAY PANEL COVER FOOTPRINT

3. Mount the display panel cover using M4 screws (not provided with the kit). See the figure below.



No.	Description	No.	Description
1	Mounting Wall	3	Display Panel
2	Display Panel Cover		

FIGURE 2. MOUNTING THE REMOTE DISPLAY PANEL

4. Snap in the display panel onto the panel cover. See [Figure 2](#).
5. The kit includes two identical pigtail harnesses. Refer to the figures below.
 - a. Insert plug P2 of one pigtail harness into the J1 connector of the Remote display from the back.

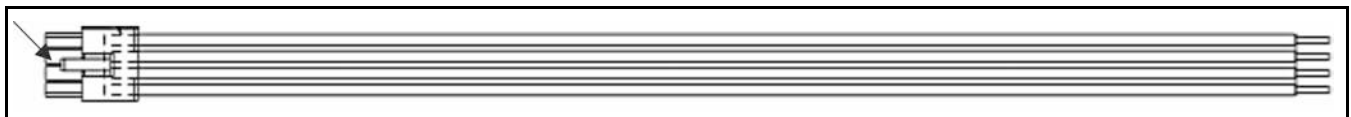


FIGURE 3. LOCATION OF PLUG P2

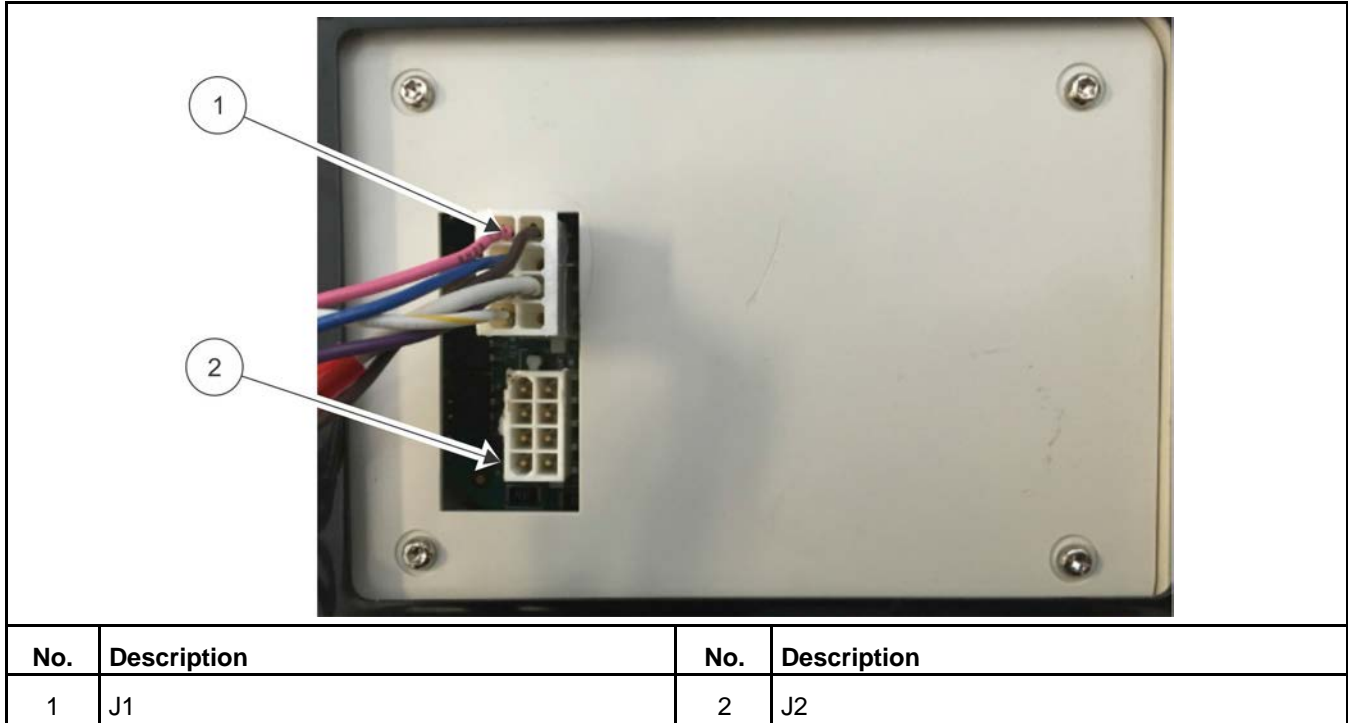


FIGURE 4. LOCATION OF DISPLAY J1 AND J2 CONNECTORS

- b. Insert plug P2 of the other harness into the open connector of the Local display on the generator set.
- 6. Each pigtail harness consists of five wires: RS485-A, RS485-B, WAKEUP, B+, and Ground.

The Remote display can be powered from the control's Local display if within 300 ft (91.5 m). If the distance is greater than 300 ft (91.5 m), **power (B+ and Ground) must come from an isolated 12 VDC power supply with 3 Amps overcurrent protection.**

Select the appropriate wire size from the table below. Connect the required wire lengths between the pigtail harnesses using splices provided with the kit.

TABLE 1. WIRE SIZES

Wire Type	Wire Length	AWG
RS485-A, RS485-B and WAKEUP	Under 1000 feet (305 m)	20-14*
B+ and Ground	Under 100 ft (30.5 m)	18
	Under 200 ft (61 m)	16
	Under 300 ft (91.5 m)	14

*Use Class 5 shielded twisted pair wires for RS485-A and RS485-B

- 7. Re-connect the negative (-) cable to the battery.
- 8. Re-connect the battery charger (if equipped).
- 9. To set up the Remote display, refer to the Mode screen information in the installation manual.