Allen-Bradley 81001-451-61-R

01 Function and selected configuration

Product function

Allen-Bradley 81001-451-61-R belongs to the PowerFlex 7000 switching power structure. Its 1500 A single-device identity must be considered together with the installed drive assembly and the optical gate/feedback circuits.

Selected configuration

The 81001-451-61-R selection identifies a single device in the 1500 A SGCT current class. It is a single spare device, separate from the matched-pair and matched-triple selections. The part is used within the PowerFlex 7000 power-electronics architecture; its device current class is not a complete drive output rating.

Functional path

Drive control / OIB	Optical gate command	1500 A SGCT device	Optical diagnostic feedback

Device class	1500 A SGCT
Assembly form	Single device
Diagnostic context	Optical gating and feedback comparison

SGCT diagnostics compare feedback before and after an issued gate pulse. For the inverter, unchanged low feedback indicates the feedback-loss path, while unchanged high feedback indicates that the gate pulse may not have reached the device. The diagnostic sequence operates during initial contactor closure and the start process, with additional checks after a drive reset.

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02 Technical operating envelope

Device technology	SGCT
Device current class	1500 A
Device quantity	1
Assembly form	Single device

Gate-drive supply check	19.6–20.4 V; Offline diagnostic
Gating signal	Fiber-optic
Diagnostic feedback	Fiber-optic

The current class and device count describe the exact spare. Gate supply and feedback details apply to the installed PowerFlex 7000 diagnostic circuit; no semiconductor blocking voltage is inferred.

Signal interpretation

Gate-drive supply and optical feedback are parts of the drive diagnostic circuit. They do not establish the SGCT blocking voltage, switching frequency or complete drive current rating.

Interface boundary

Retain phase/device-position identifiers when inspecting the gate driver, supply and fibers. A low suspect resistance can indicate a faulty SGCT without a complete short.

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03 System integration and applications

Power-device replacement

Replace the specified 1500 A SGCT single-device position within the compatible drive assembly.

Gate-path fault investigation

Correlate the firing command with gate-driver LEDs, optical connections and the returned device feedback.

Feedback-path restoration

Check the physical return fiber and its seating when feedback does not change through the diagnostic gate event.

Controlled drive recovery

Complete the drive-specific resistance, gating and startup checks after the power structure is restored.

System and supply context

The 81001-451-61-R spare is a single device in the 1500 A class. Its use requires the corresponding PowerFlex 7000 assembly; optical interfaces, supplies and other drive hardware are separate unless itemized.

Application boundary

Apply the exact spare selection to the installed power structure after identifying its assembly and diagnostic position. Current class alone does not establish interchangeability with another drive device.

Can 81001-451-61-R be selected solely because its current class exceeds that of an existing SGCT?

No. A higher nominal device class does not establish compatibility. Match the exact drive assembly, required device reference and prescribed replacement configuration.

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04 Engineering selection decisions

What current class and assembly form identify 81001-451-61-R?

It is a single 1500 A SGCT for the PowerFlex 7000 spare-parts system. It is distinct from the matched pairs and matched triples of the same current class.

When does the drive compare feedback from the position occupied by 81001-451-61-R?

The inverter diagnostic examines feedback before and after a gate pulse at initial contactor closure and during the start sequence. The firmware also performs diagnostics after a drive reset.

How is a damaged firing-card power connection relevant to 81001-451-61-R?

A loose or poorly seated connection can prevent the gate driver from operating correctly even when the power supply itself is active. Check the connection at the affected device position.

What must be preserved when tracing an inverter fault back to 81001-451-61-R?

Keep the original phase and device-position fault designation with the physical device, its optical fibers and firing-card connections. That association is needed to compare test results before and after the repair.

Check the firing supply	Verify the auxiliary supply and seated firing-card power connections under the prescribed test conditions.
Interpret resistance correctly	A device need not be a complete short to be faulty; follow the specified test procedure.

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05 Configuration boundary and references

Lifecycle and support

The current manufacturing and factory-support phase of 81001-451-61-R is not confirmed. Product availability alone does not establish its lifecycle status.

Replacement assessment

Preserve the 1500 A single device identity and match the installed power assembly. Device current class alone is insufficient for interchangeability.

Document roles

Use the original manufacturer excerpt for its preserved technical tables and drawings. This product brief explains selection and system context. The separate installation guide covers preparation, connection, tests and handover; it does not replace manufacturer instructions.

Technical basis

Rockwell Automation PowerFlex 7000 Troubleshooting Guide, 7000-TG002L-EN-P, February 2020.

Related product navigation

- Allen-Bradley 80190-320-23-R
- Allen-Bradley 80190-780-01-R

These are related references, not confirmed substitutes or an automatically approved assembly.

Product enquiries