ABB DSQC604 3HAC12928-1

01 Scope and system boundary

Installed function

ABB DSQC604 3HAC12928-1 supplies the control-power circuits in the applicable IRC5 controller. A DCOK indicator provides a local view of the supply condition. The control supply is distinct from the customer I/O and drive-system supplies in the IRC5 cabinet. Its diagnosis depends on both input conditions and connected load. The voltage windows used in the troubleshooting sequence are diagnostic criteria; they are not a substitute for a rated-input or rated-output specification.

Functional sequence

01	Cabinet AC path
02	DSQC604 control supply
03	DC output loads
04	Controller electronics

Before work starts

Check	Technical purpose
Read the fault pattern	Check the FlexPendant messages and DCOK LED before disturbing the wiring. A steady green indicator is the normal supply indication; pulsing green points first to loading or short-circuit checks, while an unlit indicator requires a supply and input investigation.
Preserve a sufficient load	For the specified diagnostic measurement, keep at least one connected unit drawing 0.5-1 A. Disconnect outputs one at a time rather than removing every load. An unloaded measurement does not reproduce normal operating conditions.

Isolation and handling

Separate a no-load indication from a shorted downstream circuit. The input and output figures above are troubleshooting windows, not a declaration of absolute electrical ratings.

ABB DSQC604 3HAC12928-1

02 Connections and readiness

Interface preparation

Interface	Function	Check
AC input	Input to the control power supply.	Use the cabinet circuit allocation to identify the measurement points.
DC outputs	Supply the connected control units.	At least one output requires a 0.5-1 A load during diagnosis.
DCOK	Status LED used together with electrical measurements.	A pulsing indication is not by itself proof of failed hardware.
Mounting and X1-X4	Control-supply attachment and connection set.	Preserve connector assignments during removal and refitting.

Engineering considerations

Use a voltmeter, resistance measurement equipment and a suitable connected load for the diagnostic task. Resistance checks are performed only in the isolated, de-energized condition. When measuring outputs in the approved energized procedure, retain the required load on at least one output. Do not unload every output and then interpret the resulting pulse behavior as a new failure.

Relevant setup data

Item	Value or condition
DCOK steady green	Supply normally working; confirm output measurements
DCOK pulsing green	Possible missing load or output short circuit
DCOK off	Possible input deficiency, supply fault or indicator fault
Required diagnostic load	0.5-1 A on at least one DC output

ABB DSQC604 3HAC12928-1

03 Installation and replacement

Work sequence

01	Read the fault pattern
02	Preserve a sufficient load
03	Trace an output fault
04	Measure the supply windows
05	Replace the control supply
06	Check the recovered controller

Execution details

Stage	Action and reason
Trace an output fault	With the system safely isolated for resistance checks, examine the supply outputs and the connected-unit inputs for a short to ground. Do not replace a good supply while leaving a shorted downstream circuit attached.
Measure the supply windows	During the qualified troubleshooting procedure, verify 172 < U < 276 V at the input and +24 < U < +27 V at each tested output. Keep these diagnostic limits separate from protection-device ratings and do not infer a new continuous operating specification from them.
Replace the control supply	Use the assigned IRC5 control-supply location. After isolation, identify connectors, remove the attachment hardware and refit the replacement using the controller service procedure. Restore every output to its original destination.
Check the recovered controller	Confirm the required voltage at all affected outputs, stable DCOK indication and normal startup of the connected units. Recheck the original FlexPendant fault rather than stopping at the appearance of a green lamp.

Before energization

Disconnect mains before disconnecting or replacing the power supply. Inspect FlexPendant errors and warnings before fault isolation. Do not assume a pulsing DCOK LED proves an internal supply failure. Maintain a 0.5-1 A load on at least one DC output during the specified voltage test.

ABB DSQC604 3HAC12928-1

04 Commissioning and fault isolation

Functional acceptance

Test	Action	Expected result
Supply input	Measure at the intended input points.	Input falls within the applicable diagnostic window.
Loaded outputs	Measure outputs with a required load retained.	Output values satisfy the diagnostic window.
Status indication	Compare DCOK with measured outputs.	Any disagreement is identified and investigated.
Controller operation	Confirm the restored control-unit functions.	Original supply symptom is resolved under operating load.

Interpret the symptom

Observation	Investigation	Decision boundary
DCOK pulsing	Check connected loads and output short circuits.	An unloaded supply may produce the same symptom as a fault.
Output voltage correct, LED off	Record a possible indication defect.	Do not equate an unlit LED with zero output.
Output wrong, input outside diagnostic window	Trace the cabinet input path and connections.	Resolve the supply path before condemning the DC unit.
Short circuit at a connected unit	Identify and repair the affected load circuit.	Retest the supply with the required load connected.

Controlled return to service

Retain measured input and output voltages, the connected load during testing and DCOK behavior. Keep these together: a voltage measurement without its load condition is incomplete evidence. Record any downstream short circuit or upstream cabinet-feed fault corrected during diagnosis.

ABB DSQC604 3HAC12928-1

05 Technical checks and handover

Questions that affect the work

What can a pulsing green DCOK LED on ABB DSQC604 3HAC12928-1 mean?
The supply may have no connected load or a short circuit on an output; inspect the connected circuits before condemning the supply.

Why should ABB DSQC604 3HAC12928-1 remain loaded during an output-voltage test?
It requires 0.5-1 A on at least one DC output to operate correctly, so an entirely unloaded test can give a misleading result.

Which output readings are expected during troubleshooting of ABB DSQC604 3HAC12928-1?
The voltage-check procedure expects each tested output to be above +24 V and below +27 V while the required load remains connected.

Does an unlit DCOK LED always require immediate replacement of ABB DSQC604 3HAC12928-1?
No. If all outputs remain at the correct voltage, the indicator condition still indicates a fault, but the troubleshooting procedure does not require instant replacement solely for that condition.

Final checks

Check	Requirement
1	Check downstream circuits for shorts before reconnecting the supply.
2	Use the 172-276 V input window as a diagnostic criterion for this procedure.
3	Check each output against the +24 to +27 V diagnostic window.
4	Restore all output connections and confirm stable control operation after replacement.

Related catalogue pages

ABB DSQC609-3HAC14178-1

ABB 3HAC025466-001

ABB 3HAC029105-002

Technical basis

ABB 3HAC020738-001 Rev. K, DSQC604 troubleshooting; ABB 3HAC021313-001 Rev. P, control-supply replacement