

# ABB DSQC611 3HAC13389-2

## 01 Scope and system boundary

### Installed function

ABB DSQC611 3HAC13389-2 is the contactor interface board in the applicable IRC5 controller. It interfaces with the cabinet contactor arrangement, including the MOTOR ON contactors. The contactor interface belongs to the IRC5 motor-enable section. Its physical location changes with cabinet architecture: the left wall of a single cabinet or the left wall of the Drive Module in a dual-cabinet system. The contactor group includes K42, K43 and the brake contactor.

### Functional sequence

|    |                          |
|----|--------------------------|
| 01 | Motor-enable arrangement |
| 02 | DSQC611 interface        |
| 03 | K42 / K43 contactors     |
| 04 | Controlled cell test     |

### Before work starts

| Check                          | Technical purpose                                                                                                                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Identify the contactor section | Locate K42, K43, the brake contactor and the interface board in the cabinet arrangement. For a dual-cabinet controller, work in the Drive Module. Do not assume that a nearby low-voltage supply is the interface-board location.      |
| Isolate and protect the board  | Switch off mains and follow the controller energy-isolation procedure. Establish ESD protection before disconnecting the board. Identify every harness so motor-enable and associated contactor connections can be restored correctly. |

### Isolation and handling

Preserve the safety-option-specific X23 configuration during a board exchange. Verify the contactor and brake functions before permitting automatic motion.



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## 02 Connections and readiness

### Interface preparation

| Interface                 | Function                                    | Check                                                                            |
|---------------------------|---------------------------------------------|----------------------------------------------------------------------------------|
| MOTOR ON arrangement      | Associated with contactors K42 and K43.     | Retain original circuit and harness allocation.                                  |
| Brake contactor           | Part of the adjacent contactor arrangement. | Include brake behavior in the affected-function test.                            |
| X23                       | Limit-switch override connection.           | In the specified SafeMove configuration, pins 1 and 4 remain plugged and unused. |
| Board harness / retention | Connectors and attachment screws.           | Support and protect the ESD-sensitive assembly during replacement.               |

### Engineering considerations

The X23 plugs are configuration parts, not packing material. Where the specified SafeMove arrangement applies, transfer the plugs at pins 1 and 4 to the replacement board and keep the limit-switch override connection unused. Retain the rest of the cabinet connection allocation and use ESD precautions throughout board handling.

### Relevant setup data

| Item                    | Value or condition        |
|-------------------------|---------------------------|
| Single-cabinet location | Left cabinet wall         |
| Dual-cabinet location   | Left wall of Drive Module |
| MOTOR ON contactors     | K42 and K43               |
| Associated device       | Brake contactor           |



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## 03 Installation and replacement

### Work sequence

|    |                                |
|----|--------------------------------|
| 01 | Identify the contactor section |
| 02 | Isolate and protect the board  |
| 03 | Check the safety option        |
| 04 | Transfer retained plugs        |
| 05 | Mount and reconnect            |
| 06 | Prove the cell response        |

### Execution details

| Stage                   | Action and reason                                                                                                                                                                                                                                                                                          |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Check the safety option | Determine whether the installation uses the specified SafeMove arrangement. In that arrangement, X23 pins 1 and 4 have plugs and the limit-switch override contact is not used. Preserve this condition rather than treating the plugs as disposable packing.                                              |
| Transfer retained plugs | Remove the two X23 plugs carefully from the old board using the prescribed service method, then place them in the same pin positions on the replacement. This step applies to the specified SafeMove configuration; do not impose it on a different safety architecture without its matching instructions. |
| Mount and reconnect     | Refit the board and attachment screws. Restore each identified connector and check that no harness is loose or strained. Keep the original circuit allocation; the physical ability to insert a connector is not a functional test.                                                                        |
| Prove the cell response | Use the approved commissioning procedure to verify MOTOR ON, brake operation and the safety functions affected by the work. Keep the robot in a controlled test state until these checks are complete. Record the restored X23 condition for future maintenance.                                           |

### Before energization

Switch off controller mains before opening the contactor interface connections. Apply ESD precautions when handling the circuit board. Label the contactor and harness connections before disconnection. Check the installed safety-option configuration before moving any plugs.



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## 04 Commissioning and fault isolation

### Functional acceptance

| Test                   | Action                                             | Expected result                                              |
|------------------------|----------------------------------------------------|--------------------------------------------------------------|
| Retained configuration | Compare safety options and X23 plug positions.     | The applicable configuration is preserved.                   |
| Board installation     | Check attachment and identified connectors.        | The board is secure with no loose or strained harness.       |
| Contactor function     | Perform the approved MOTOR ON and brake tests.     | The intended contactor and brake behavior is restored.       |
| Safety function        | Run the affected cell safety acceptance procedure. | No override or bypass remains from the maintenance activity. |

### Interpret the symptom

| Observation                               | Investigation                                                            | Decision boundary                                                             |
|-------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| SafeMove option present                   | Preserve the two X23 plugs in positions 1 and 4.                         | Do not turn the plugged connection into an override circuit.                  |
| Different safety architecture             | Identify the applicable controller configuration.                        | Do not impose the SafeMove-specific plug rule blindly on another arrangement. |
| Motor enable fails after service          | Review connector allocation, contactor response and controller messages. | Do not bridge or bypass a safety function to force operation.                 |
| Board replaced but brake behavior changed | Keep the cell in the maintenance state.                                  | Resolve the affected contactor/brake path before release.                     |

### Controlled return to service

Record the cabinet type, contactor connections, installed safety option and X23 plug condition. Retain the MOTOR ON, brake and affected safety-function test results separately. This board exchange must not silently change the cell safety configuration.



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## 05 Technical checks and handover

### Questions that affect the work

#### Which MOTOR ON contactors are associated with ABB DSQC611 3HAC13389-2?

The contactor arrangement identifies K42 and K43 as the MOTOR ON contactors alongside the board.

#### What must happen to X23 plugs when ABB DSQC611 3HAC13389-2 is replaced in the specified SafeMove arrangement?

Transfer the plugs at pins 1 and 4 to the replacement board; the limit-switch override contact remains plugged and unused.

#### Where should maintenance personnel look for ABB DSQC611 3HAC13389-2 in a dual-cabinet system?

The board is on the left wall of the Drive Module, rather than in the Control Module.

#### Why is ESD protection required while handling ABB DSQC611 3HAC13389-2?

The circuit board is sensitive to electrostatic discharge, so handling must follow the controller ESD procedure.

### Final checks

| Check | Requirement                                                                                 |
|-------|---------------------------------------------------------------------------------------------|
| 1     | For the specified SafeMove arrangement, transfer the X23 plugs from pins 1 and 4.           |
| 2     | Do not use the plugged X23 limit-switch override connection with that SafeMove arrangement. |
| 3     | Secure the replacement board and reconnect the identified harnesses.                        |
| 4     | Verify motor-enable, brake and safety behavior under the approved cell test procedure.      |

### Related catalogue pages

[ABB DSQC332](#)

[ABB DSQC205 YB560103-AD/1](#)

### Technical basis

ABB 3HAC021313-001 Rev. P, contactor-interface replacement and controller parts, PDF pages 254-256, 304

