

ACS800

Option description
Bypass connection
for ACS800-07, -17, and -37 drives



3AUA0000070085 Rev B
EN
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Option description

What this manual contains

This manual contains a brief description of the drive bypass connection. In addition, an example design (a manually-controlled bypass connection) is represented in detail including wiring diagram, layout drawing and operating instructions.

Note: Always refer to the delivery-specific circuit diagrams and layout drawings when working on or operating the bypass connection. The final design may differ remarkably from the example shown in this manual.

Applicability

The option described in this manual is available for the cabinet-installed ACS800 single drives ACS800-07, -17, and -37.

Overview

The bypass connection includes the following as standard:

- equipment and wiring needed to switch the motor power supply between the drive and the power line (direct online)
- a versatile motor protection breaker for the on/off control, disconnection and protection of the motor when it is connected direct online.

Depending on the customer order, the control of the bypass is either manual with the operating switches on the cabinet door (a manually-controlled bypass connection), or automatic upon a fault trip of the drive.

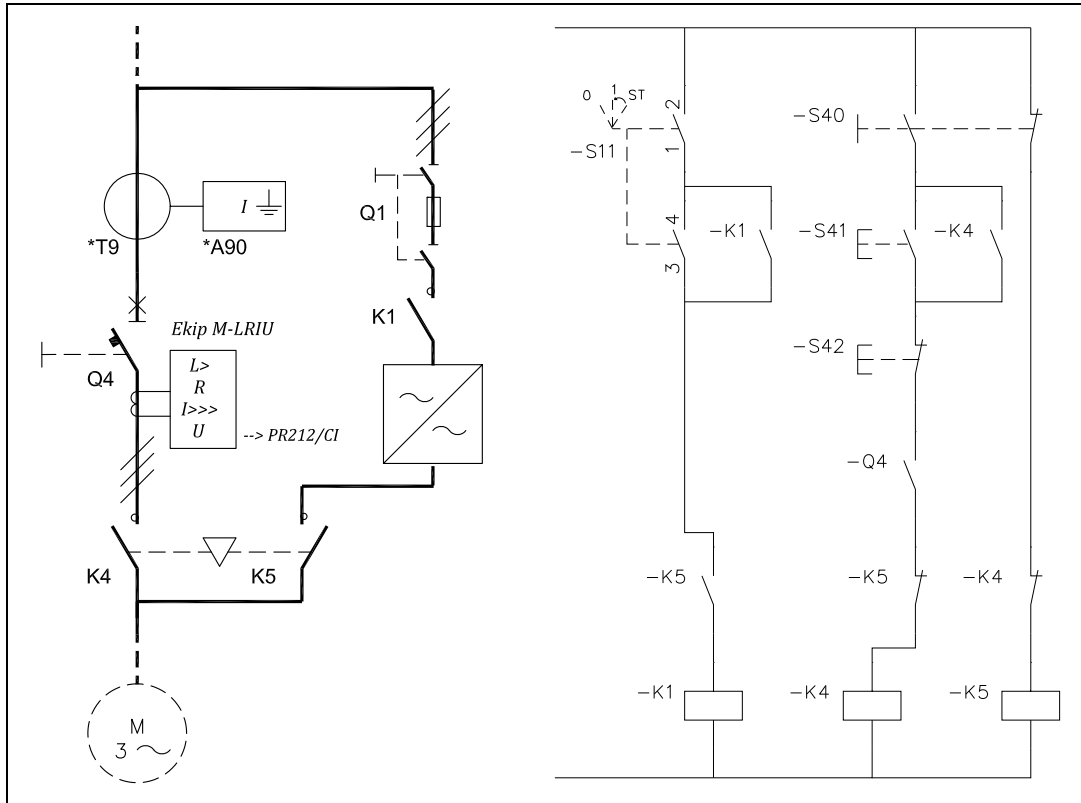
The bypass connection may also be equipped with a ground fault protection and/or a synchronization circuit. The ground fault protection is only available for the grounded (TN) power line. If the synchronization circuit is included, it is possible to start the motor to the nominal speed with the drive and then switch the motor to the power line (direct online).

- For more information on the ground fault protection, see <http://www.trafox.fi/> and browse further to the data of *the VR-14 Single Channel Monitoring Unit*.
- For more information on the synchronization, see *RSYC-01 Synchronizing Unit User's Manual* (3AFE68827370 [English]) available at <http://www.abb.com/drives>.

Example: manually-controlled bypass connection

Circuit diagram

The figure below shows an example of a circuit diagram.



If the motor protection breaker Emax is used, the design is slightly different (implementation of K4 and Q4).

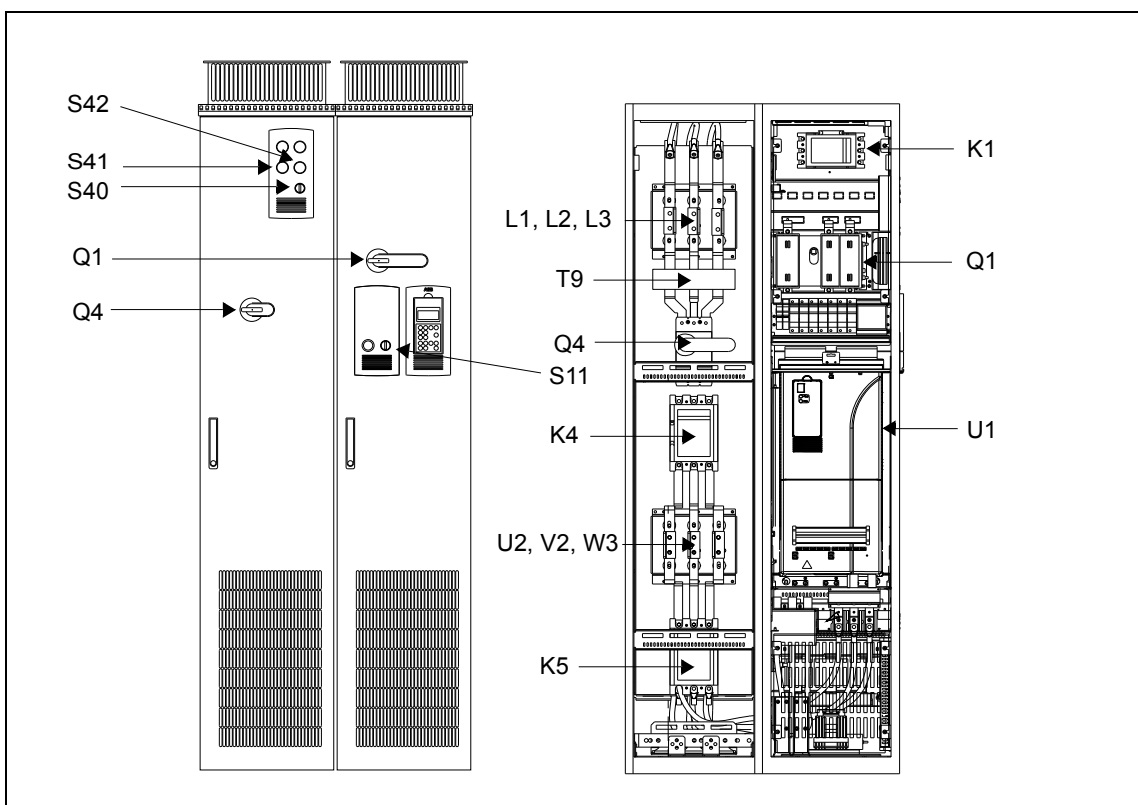
Note: At motor current above 630 A, the breaker Tmax (Q4) is replaced with Emax. With the Emax breaker, protection relay needs to contain LSI protection.

Designation	Description
Q1	Drive main switch
K1	Drive main contactor
U1	Drive module
Q4	Bypass circuit breaker
K4	Bypass contactor
K5	Drive output contactor
S11	Drive operating switch (main contactor on/off control)
S40	Motor power supply selection (drive or direct-on-line)
S41	Start button (when motor is connected direct-on-line)
S42	Stop button (when motor is connected direct-on-line)
T9	Current transformer of the ground fault monitoring option

L1, L2, L3	Drive input power connection busbars
U2, V2, W3	Drive motor connection busbars

Layout drawing

The figure below shows an example of a layout design.



Note: This layout drawing is valid for the circuit diagram design shown in the previous figure.

See page 4 for the designations.

Operating instructions

Note: These instructions are valid only for the manually-controlled bypass connection described in this manual.

Tuning the motor protection breaker [Q4]

Tune the settings of the motor protection breaker. See the document 1SDH001070R0001 (and 1SDC210015D0208) at <http://www.abb.com>.

Switching the motor power supply from drive to direct online:

1. Stop the drive and the motor. Use the control panel (drive in local control mode), or the external stop signal (drive in remote control mode).
2. Open the main contactor of the drive with S11.
3. Switch the motor power supply from the drive to direct online with S40.
4. Start the motor with S41.

Switching the motor power supply from direct online to drive:

1. Stop the motor with S42.
2. Switch the motor power supply from direct online to drive with S40.
3. Close the operating switch of the drive with S11 (-> turn to position ST for 2 seconds and leave to position 1).
4. Start the drive and the motor with the drive control panel (drive in local control mode), or external start signal (drive in external control mode).

Fault indication

A fault situation is indicated with an indicator light on the cabinet front door. If the fault is in the bypass connection, see the document 1SDH001070R0001 (and 1SDC210015D0208) at <http://www.abb.com>.

In case of a drive fault, see the relevant hardware manual or the firmware manual.

Technical data for the motor protection breaker [Q4]

Type: ABB SACE Tmax molded case circuit breaker with Ekip M-LRIU electronic trip unit.

Ekip M-LRIU provides versatile protection features: Protection against overload, rotor block, short-circuit and missing phase or unbalanced.

For more information and user instructions, see the document 1SDH001070R0001 (and 1SDC210015D0208) at <http://www.abb.com>.

For information on the Emax breaker, see the document 1SDC210015D0208 at <http://www.abb.com>.

