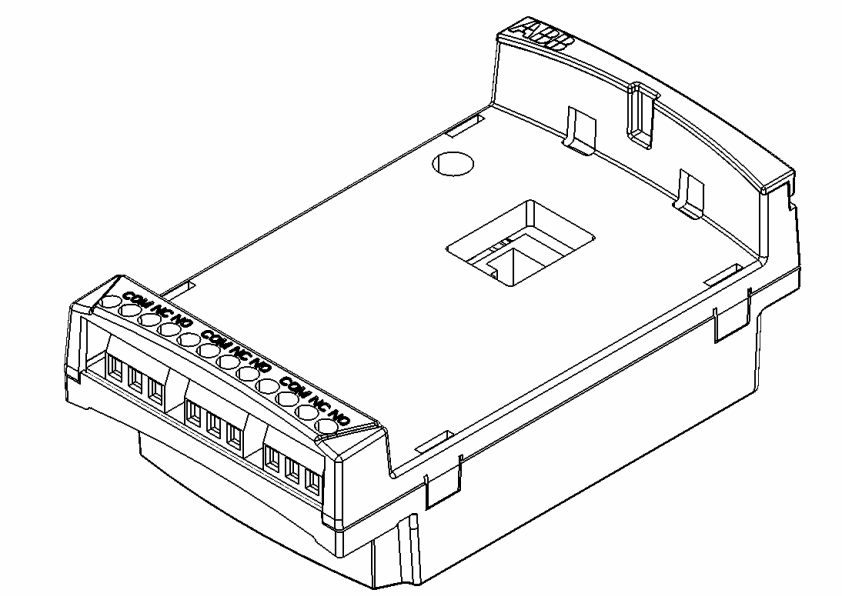
ABB Drives

User's Manual

Output Relay Module
MREL-01



Output Relay Module
MREL-01

User's Manual

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Safety



WARNING! All electrical installation and maintenance work on the drive should be carried out by qualified electricians only.



WARNING! The drive and adjoining equipment must be properly grounded.



WARNING! Do not attempt any work on a powered drive. After switching off the mains, always allow the intermediate circuit capacitors 5 minutes to discharge before working on the drive, the motor or the motor cable. It is good practice to check (with a voltage indicating instrument) that the drive is in fact discharged before beginning work.



WARNING! The motor cable terminals of the drive are at a dangerously high voltage when mains power is applied, regardless of motor operation.



WARNING! There can be dangerous voltages inside the drive from external control circuits even when the drive mains power is shut off. Exercise appropriate care when working on the unit. Neglecting these instructions can cause physical injury or death.

Use of Warnings and Notes

There are two types of safety instructions throughout this manual:

- Notes draw attention to a particular condition or fact, or give information on a subject.
- Warnings caution you about conditions which can result in serious injury or death and/or damage to the equipment. They also tell you how to avoid the danger. The warning symbols are used as follows:



Dangerous voltage warning warns of high voltage which can cause physical injury and/or damage to the equipment.

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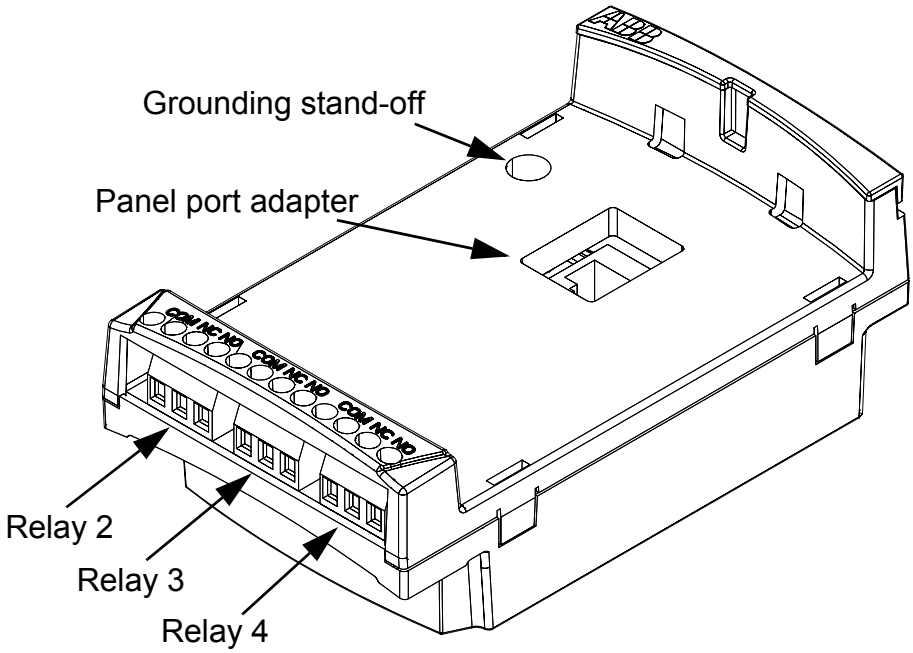
Installation

Preparing for Installation

The MREL-01 Module

The Relay Output Extension module (MREL) is an interface for connecting three relay outputs to an ACS310 or ACS350 drive.

Module Layout



Compatibility

MREL-01 is mechanically compatible with all ACS310 and ACS350 drives.

MREL-01 is supported by all ACS310 software versions and ACS350 software and hardware versions from 258A.

Installing the Module

Delivery Check

The option package contains:

- MREL-01 module
- Grounding stand-off
- Panel port adapter
- Warning stickers in several languages
- This manual

Mounting



WARNING! Follow the safety instructions given in this guide and in the ACS310 or ACS350 *User's Manual*.

To mount the MREL-01 module:

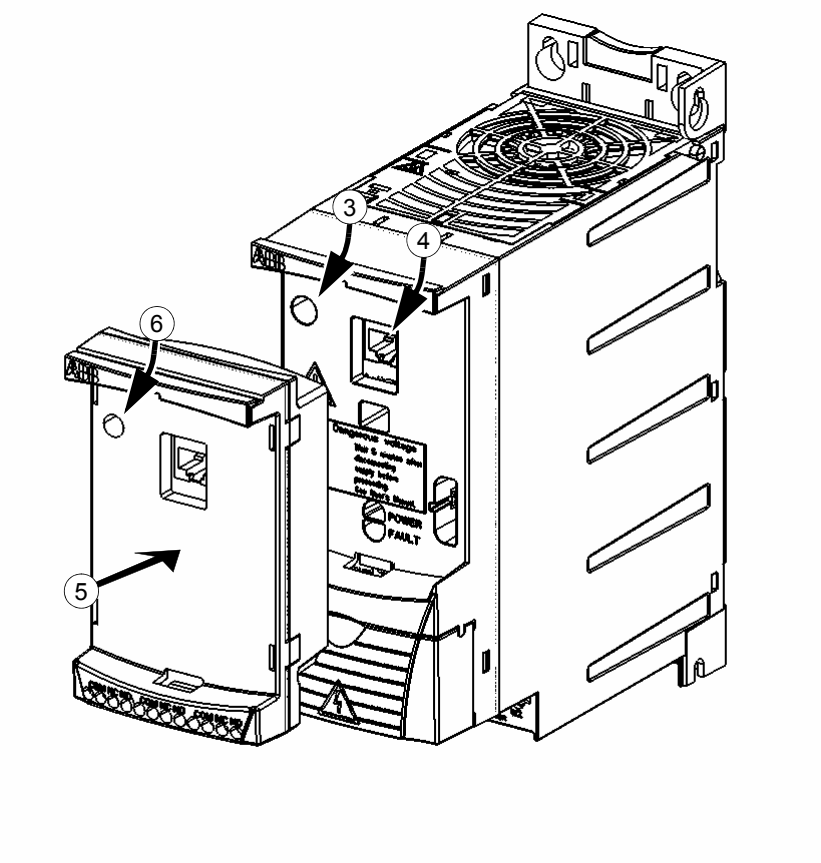
1. If not already off, remove mains power from the drive.
2. Remove the control panel or panel cover. (See instructions in the drive User's Manual.)
3. Remove the grounding screw in the top left corner of the drive's control panel slot and install the grounding stand-off in its place.
4. Ensure that the panel port adapter is attached to either the panel port of the drive or the mate part of the MREL-01 module.
5. Gently and firmly install the MREL-01 module to the drive's panel slot directly from the front.

NOTE! Signal and power connections to the drive are automatically made through a 6-pin connector.

6. Ground the module by inserting the screw removed from the drive in the top left corner of the MREL-01 module. Tighten the screw.

NOTE! Correct insertion and tightening of the screw is essential for fulfilling the EMC requirements and proper operation of the module.

7. Install the control panel or panel cover on the MREL-01 module.

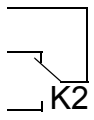
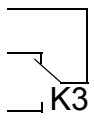
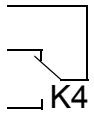


Wiring

- Use 0.5 to 1.5 mm^2 (20 to 16 AWG) cable with an appropriate voltage rating for digital signals.
- Refer to “Terminal Designations” on page 9 and connect control wires to the MREL-01 module.

Terminal Designations

Use the following table for reference when wiring terminals.

<table>
<tr><th colspan="2">Identification</th><th colspan="2">Hardware Description</th></tr>
<tr><td>1</td><td>COM</td><td rowspan="3"></td><td rowspan="10">OUTPUT RELAYS K2-K4:
• Max. continuous current:
2 A rms (cos φ = 1),
1 A rms (cos φ = 0.4)
• Max. switching capability:
6 A (24 V DC, resistive load)
1500 VA (250 V AC)
• Galvanically isolated from each other (2.5 kV AC, 1 min.)</td></tr>
<tr><td>2</td><td>NC</td></tr>
<tr><td>3</td><td>NO</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td>1</td><td>COM</td><td rowspan="3"></td></tr>
<tr><td>2</td><td>NC</td></tr>
<tr><td>3</td><td>NO</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td>1</td><td>COM</td><td rowspan="3"></td></tr>
<tr><td>2</td><td>NC</td></tr>
<tr><td>3</td><td>NO</td></tr>
</table>

Apply Power

1. Turn on the mains power to the drive.
2. Continue to the next section, Start-Up.

Start-Up

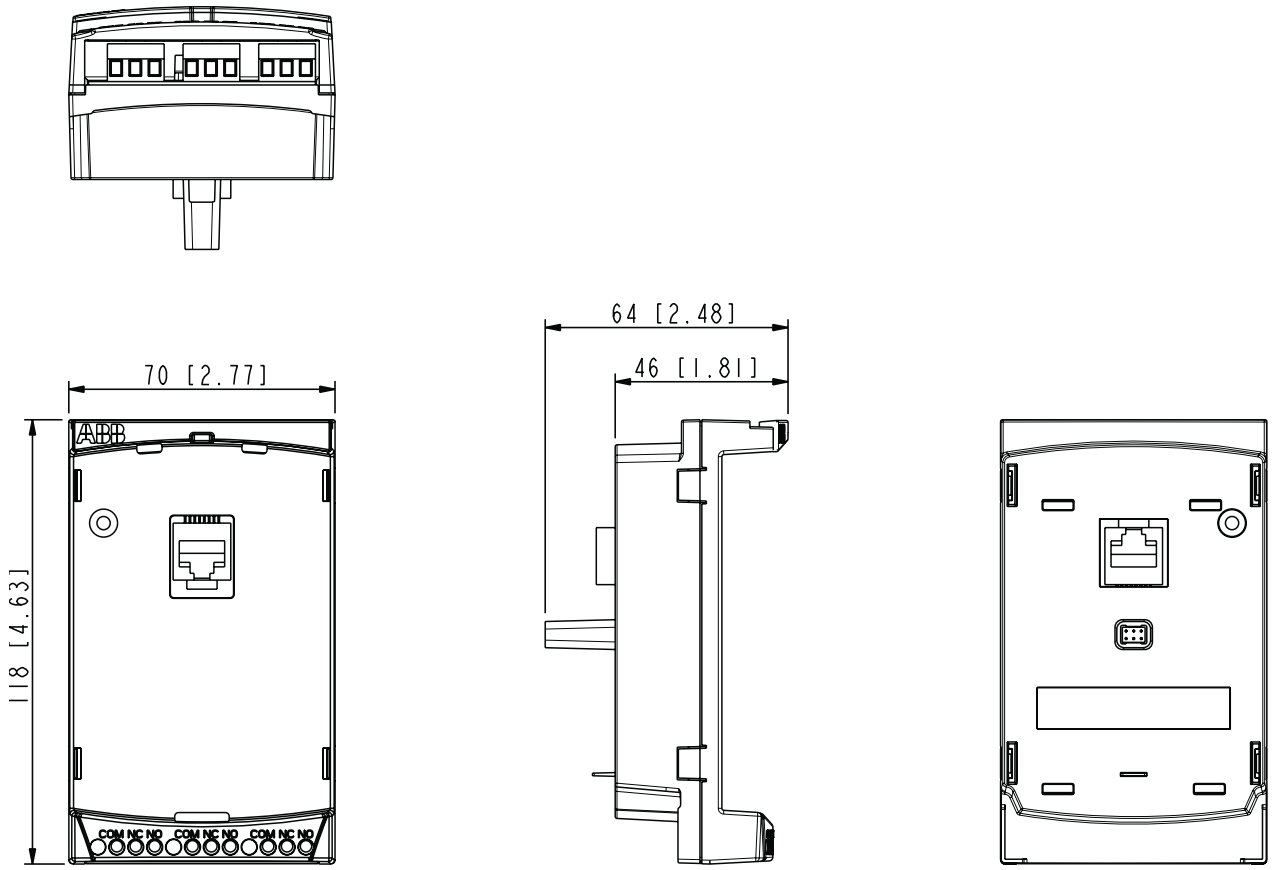
To configure the operation of the relays added using the MREL-01 module:

1. Power up the drive.
2. In ACS350, set the parameter 9801 EXTENSION SEL to 2 (MREL). See the *User's Manual* of the drive for more information on parameters.
3. Use the control panel on the drive and set the parameters for relay outputs 2 to 4 in Group 14 – Relay Outputs. Refer to the *User's Manual* of the drive for parameter descriptions, and for instruction on the control panel operation.

Technical Data

Dimensions

Module dimensions are shown in the figure below:



Enclosure Degree of Protection

IP20.

Ambient Conditions

The module is mounted outside the drive enclosure. Refer to the drive's requirements.

Connectors

Connectors on the module:

- 6-pin connector (connection to the MMIO board)
- Three 3-pin, screw-type, non-detachable terminal blocks that fit wires up to 1.5 mm^2 (16 AWG).

Specifications

Module Specifications

- Estimated min. lifetime: $\geq$ 200,000 cycles/relay, at maximum continuous current operation.
- All materials are UL/CSA-approved.
- When used with an ABB drive, the module complies with EMC standard EN/IEC 61800-3 (2004) for electromagnetic compatibility and EN/IEC 61800-5-1 (2005) for safety requirements.

Relay Outputs

The specifications for the module relay outputs are:

- Max. contact voltage: 30 V DC, 250 V AC
- Max. switching capability: 6 A (24 V DC, resistive load)
  1500 VA (230 V AC)
- Max. continuous current: 2 A rms (cos φ = 1), 1 A rms (cos φ = 0.4)
- Minimum current: 10 mA, 12 V DC
- Contact material: Silver-nickel (AgN)
- Isolation between relay digital outputs, test voltage: 2.5 kV AC, 1 minute

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