Rittal TS 8 Cabinet Installation
ACS800-04 and ACS800-04M Drive Modules (45 to 560 kW)
ACS800-U4 Drives (60 to 600 HP)
ACS800 Single Drive Manuals

HARDWARE MANUALS (appropriate manual is included in the delivery)

ACS800-01/U1 Hardware Manual 0.55 to 110 kW (0.75 to 150 HP) 3AFE64382101 (English)
ACS800-01/U1 Marine Supplement 3AFE64291275 (English)
ACS800-02/U2 Hardware Manual 90 to 500 kW (125 to 600 HP) 3AFE64467373 (English)
ACS800-11/U11 Hardware Manual 5.5 to 110 kW (7.5 to 125 HP) 3AFE68367883 (English)
ACS800-04 Hardware Manual 0.55 to 132 kW 3AFE68372984 (English)
ACS800-04/04M/U4 Hardware Manual 45 to 560 kW (60 to 600 HP) 3AFE64671006 (English)
ACS800-04/04M/U4 Cabinet Installation 45 to 560 kW (60 to 600 HP) 3AFE68360323 (English)
ACS800-07/U7 Hardware Manual 45 to 560 kW (50 to 600 HP) 3AFE64702165 (English)
ACS800-07/U7 Dimensional Drawings 45 to 560 kW (50 to 600 HP) 3AFE64775421
ACS800-07 Hardware Manual 500 to 2800 kW 3AFE64731165 (English)
ACS800-17 Hardware Manual 75 to 1120 kW 3AFE64813398 (English)

• Safety instructions
• Electrical installation planning
• Mechanical and electrical installation
• Motor control and I/O board (RMIO)
• Maintenance
• Technical data
• Dimensional drawings
• Resistor braking

FIRMWARE MANUALS, SUPPLEMENTS AND GUIDES
(appropriate documents are included in the delivery)

Standard Application Program Firmware Manual 3AFE64527592 (English)
System Application Program Firmware Manual 3AFE63700177 (English)
Application Program Template Firmware Manual 3AFE64616340 (English)
Master/Follower 3AFE64590430 (English)
PFC Application Program Firmware Manual 3AFE64649337 (English)
Extruder Control Program Supplement 3AFE64648543 (English)
Centrifuge Control Program Supplement 3AFE64667246 (English)
Traverse Control Program Supplement 3AFE64618334 (English)
Crane Control Program Firmware Manual 3BSE11179 (English)
Adaptive Programming Application Guide 3AFE64527274 (English)

OPTION MANUALS (delivered with optional equipment)

Fieldbus Adapters, I/O Extension Modules etc.
ACS800-04 and ACS800-04M Drive Modules
45 to 560 kW
ACS800-U4 Drive Modules
60 to 600 HP

Rittal TS 8 Cabinet Installation
# Table of contents

ACS800 Single Drive Manuals ................................. 2

## About this manual

- What this chapter contains .................................. 7
- Target audience ................................................. 7
- Safety ........................................................... 7
- What this manual contains ................................... 7
- Other related manuals ......................................... 8
- Component lists ................................................ 8
- Categorization according to the frame size .................. 9
- Take care of sufficient cooling ............................... 9
- Liability ........................................................ 9

### Drive module of frame size R7 with bottom exit

- What this chapter contains .................................. 11
- Rittal parts ..................................................... 11
- ACS800-04M parts .............................................. 11
- Additional parts to be provided by the installer ........... 12
- Moving, unpacking and assembling the drive module ...... 12
- Layout of the installation .................................... 13
- Installation steps .............................................. 14
  - Cable lead-through plates ................................. 20
  - Fastening of the back mounting plate .................... 21
  - Fastening of the RDCU Drive Control Unit to the side mounting plate ................................. 22

### Drive module of frame size R7 with bottom exit and Rittal cooling unit

- What this chapter contains .................................. 23
- Required Rittal parts ......................................... 23
- ACS800-04M parts .............................................. 23
- Additional parts to be provided by the installer ........... 23
- Moving, unpacking and assembling the drive module ...... 24
- View of the installation ..................................... 24
- Layout of the installation .................................... 25
- Cooling air flow .............................................. 26
- Installation steps .............................................. 27

### Drive module of frame size R8 and Rittal cooling unit

- Layout example with cooling unit on the side ............... 29
- Layout example with cooling unit on the door ................ 30
Drive module of frame size R8

What this chapter contains ......................................................... 31
Required Rittal parts ................................................................. 31
ACS800-04M parts ........................................................................ 32
Additional parts to be provided by the installer .......................... 32
Moving, unpacking and assembling the drive module ............... 32
Layout of the installation ............................................................... 33
Installation steps ......................................................................... 34
  View of base plates and cable lead-throughs fastened ............... 40
  Fastening of the punched sections ......................................... 41
  Fastening the drive pedestal to the enclosure frame ............... 41
  Fastening of the back mounting plate .................................... 41

Dimensional drawings

What this chapter contains .......................................................... 43
Frame size R7 ............................................................................. 44
Frame size R8 ............................................................................. 45
Air baffles for the enclosure with drive module of frame size R7 and Rittal cooling unit .......................... 46
  Air baffle at the right-hand side of the drive module ............. 47
EMC screen for the enclosure with drive module of frame size R7 ................................................................. 49
EMC screen mesh for the enclosure with drive module of frame size R7 and Rittal cooling unit ................. 50
About this manual

What this chapter contains

This chapter describes the intended audience and contents of the manual and refer to other related manuals.

Target audience

The manual is intended for people who plan the installation and install the drive module into a Rittal TS 8 cabinet. Read the manual before working on the drive module. The reader is expected to know the fundamentals of electricity, wiring, electrical components and electrical schematic symbols.

The manual is written for readers worldwide. Both SI and imperial units are shown.

Safety

WARNING! Follow the safety instructions given in ACS800-04/04M/U4 Hardware Manual [3AFE64671006 (English)] when installing, operating and servicing the drive. If ignored, physical injury or death may follow, or damage may occur to the drive, motor or driven equipment. Read the safety instructions before you work on the unit.

What this manual contains

The manual shows a few installation examples on how to install the drive module into a Rittal TS 8 cabinet.

The chapters of this manual are briefly described below.

About this manual introduces the manual.

Drive module of frame size R7 with bottom exit describes the installation of a drive module of frame size R7 in an 800 mm × 2000 mm × 600 mm enclosure.

Drive module of frame size R7 with bottom exit and Rittal cooling unit describes the installation of a drive module of frame size R7 in an 800 mm × 2000 mm × 600 mm enclosure when the enclosure is cooled with a cooling unit.

Drive module of frame size R8 and Rittal cooling unit describes how to install a drive module of frame size R8 into a 600 mm deep enclosure when the enclosure is cooled with a cooling unit.
Drive module of frame size R8 describes the installation of a drive module of frame size R8 in an 800 mm × 2000 mm × 600 mm enclosure.

Dimensional drawings contains the dimensional drawings of the fastening points in the drive modules used in the installation examples in this manual, and dimensional drawings of air baffles and EMC screens.

Other related manuals

Refer to ACS800-04/04M/U4 Cabinet Installation [3AFE68360323 (English)] for information concerning the drive module such as

• dimensional drawings
• assembling instructions
• general instructions on installing the drive module into a cabinet.

Refer to ACS800-04/04M/U4 Hardware Manual [3AFE64671006 (English)] for information concerning the drive module such as

• safety
• moving and unpacking
• specifications of the drive, e.g. the ratings, sizes and technical requirements, provisions for fulfilling the requirements for CE and other markings, warranty policy etc.

For installation of ACS800-04M components, refer to their manuals:

• ARFI-10 EMC Filter Installation Guide [3AFE68317941 (English)]
• RDCU Drive Control Unit Hardware Manual [3AFE64636324 (English)]
• RPMP-11/13 Control Panel Mounting Platform Kit Installation Guide [3AFE68400643 (English)]

The manuals can be viewed on the Internet: www.abb.com under Motors, drives and power electronics / Drives / Document library.

Component lists

ACS800-04M and Rittal parts used in the installation examples are listed in the manual. A list of other components, such as the contactor, switch fuse etc., is included in Modules Engineering Tool on www.abb.com under Motors, drives and power electronics / Low Voltage AC Drives / Drives / Industrial drives, modules.
Categorization according to the frame size

The instructions, technical data and dimensional drawings which concern only certain frame sizes are marked with the symbol of the frame size R7 or R8. The frame size is not marked on the drive designation label. To identify the frame size of your drive, see the rating tables in ACS800-04/04M/U4 Hardware Manual [3AFE64671006 (English)] in chapter Technical data.

Take care of sufficient cooling

The installation examples described in this manual have been tested for sufficient cooling. When installing the drive module in another position (e.g. by the longer side, or in a horizontal position), ensure that the cooling air gratings at the front panel of the module will not be covered and the required cooling air flow is achieved.

For evaluating cooling, refer to Rittal Therm calculation program for climate control of enclosures under www.rittal.com.

Liability

The installation examples in this manual are provided to help the installer in designing his/her installation.

Note: The installation must always be designed and made according to applicable local laws and regulations. ABB does not assume any liability whatsoever for any installation which breaches the local laws and/or other regulations.
Drive module of frame size R7 with bottom exit

What this chapter contains

This chapter describes the installation of a drive module of frame size R7 with bottom exit into a 600 mm deep, 800 mm wide and 2000 mm high Rittal TS 8 enclosure. The installation is designed to comply with the limits of IEC/EN 61800-3 for immunity and emissions of electrical equipment in first environment (includes establishments connected to a low-voltage network which supplies buildings used for domestic purposes). This requires EMC screen and EMC cable lead-throughs, which are otherwise not necessarily needed. The installer is responsible for the verification. The degree of protection of the installation is IP20.

Rittal parts

This table lists the Rittal parts used in the installation.

<table>
<thead>
<tr>
<th>Rittal model no.</th>
<th>Description</th>
<th>Qty (pcs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS 8806.500</td>
<td>Enclosure with mounting plate, width × height × depth: 800 mm × 2000 mm × 600 mm</td>
<td>1</td>
</tr>
<tr>
<td>TS 8106.235</td>
<td>Side panel for 2000 mm × 600 mm</td>
<td>2</td>
</tr>
<tr>
<td>TS 8612.160</td>
<td>Punched section with mounting flange, outer mounting level for 600 mm horizontal</td>
<td>2</td>
</tr>
<tr>
<td>TS 8614.240</td>
<td>Mounting plate 1100 mm × 300 mm</td>
<td>1</td>
</tr>
<tr>
<td>DK 7092.000</td>
<td>C-rail 390 mm</td>
<td>1</td>
</tr>
<tr>
<td>DK 7097.000</td>
<td>C-rail cable clamp for cable diameters of 18 to 22 mm</td>
<td>4</td>
</tr>
<tr>
<td>DK 7098.000</td>
<td>C-rail cable clamp for cable diameters of 38 to 42 mm</td>
<td>6</td>
</tr>
<tr>
<td>DK 7828.060</td>
<td>C-rail 600 mm</td>
<td>2</td>
</tr>
<tr>
<td>DK 7967.000</td>
<td>50 mm spacer for roof plate</td>
<td>4</td>
</tr>
<tr>
<td>PS 4944.000</td>
<td>Support rail 555 mm</td>
<td>1</td>
</tr>
<tr>
<td>SK 3326.267</td>
<td>EMC compatible air filter 323 mm for 292 mm × 292 mm door ventilation holes</td>
<td>3</td>
</tr>
<tr>
<td>SK 3326.607</td>
<td>EMC compatible fan-and-air-filter unit 700/720 m³/h, 230 V, 50/60 Hz</td>
<td>1</td>
</tr>
<tr>
<td>SV 3568.000</td>
<td>Laminated copper bar Flexibar S. Dimensions: 15.5 mm × 4.8 mm, 2000 mm long</td>
<td>3</td>
</tr>
</tbody>
</table>

* for first environment EMC installations. In other installations SK 3326.200 air filter 323 mm for 292 mm × 292 mm door ventilation holes can be used.

For photos and specifications of the parts, refer to www.rittal.com.

ACS800-04M parts

The following ACS800-04M parts are used in the installation:

- drive module of type ACS800-04M-xxxx+B060+E202+H352+J400+J410. For descriptions of the plus codes, refer to ACS800-04/04M/U4 Cabinet Installation [3AFE68360323 (English)], chapter The ACS800-04/U4 and ACS800-04M: Type code.
• EMC kit 64331116 containing two power cable lead-throughs with EMC sleeves and rubber grommets, one control cable lead-through and gasket strip for EMC shielding of the enclosure door. See also page 20.

Additional parts to be provided by the installer

The following parts, in addition to the Rittal and ACS800-04M parts listed above, are needed in the installation:
• air baffle, see page 17.
• EMC screen, see page 16.
• 800 mm × 600 mm piece of wire mesh with max. 10 mm mesh size for fulfilling IP20 degree of protection of the enclosure. The mesh is placed on the top of the enclosure frame under the 50 mm spacers on which the enclosure roof lies. See page 18.
• PE busbar of dimensions 70 mm × 50 mm × 10 mm, copper
• contactor (optional)
• auxiliary voltage transformer when a contactor is installed
• supply disconnecting device and input cable fuses. See ACS800-04/04M/U4 Hardware Manual [3AFE64671006 (English)], chapters Planning the electrical installation and Technical data.
• terminal for grounding the control cable shields and self-adhesive strain reliefs to be mounted next to the RDCU Drive Control Unit. See page 22
• shroud over the input cable terminal connections and output connections of the disconnecting device.

Moving, unpacking and assembling the drive module

Follow the instructions given in ACS800-04/04M/U4 Cabinet Installation [3AFE68360323 (English)]. Fasten the bottom exit kit (+H352) to the drive module before beginning to install the drive module into the enclosure.
Layout of the installation

This photo shows the final installation with component placing dimensions in millimetres and (inches).

Note: A mirrored layout is advantageous for servicing the drive module.

The drive module is placed 30 mm (1.18 in.) from the right-hand side panel. Fastening point distances from the bottom of the back mounting plate are shown. The distance of the back mounting plate from the base plate of the enclosure is 50 mm (1.97 in.).

Drive module of frame size R7 with bottom exit
# Installation steps

<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
<th>Photo</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fasten the base plates and lead-through plates to the enclosure frame. See also section <strong>Cable lead-through plates</strong> on page 20.</td>
<td><img src="image1" alt="Left side view of the installation without side panel and EMC screen" /></td>
</tr>
<tr>
<td>2</td>
<td>Fasten the punched sections for the side mounting plate fastening to the vertical profiles of the enclosure frame.</td>
<td><img src="image2" alt="Left side view of the installation without side panel and EMC screen" /></td>
</tr>
<tr>
<td>3</td>
<td>Fasten the devices to the side mounting plate. See also section <strong>Fastening of the RDCU Drive Control Unit to the side mounting plate</strong> on page 22.</td>
<td><img src="image3" alt="Left side view of the installation without side panel and EMC screen" /></td>
</tr>
<tr>
<td>4</td>
<td>Fasten the side mounting plate to the punched sections.</td>
<td><img src="image4" alt="Left side view of the installation without side panel and EMC screen" /></td>
</tr>
<tr>
<td>5</td>
<td>Fasten the devices, and the drive module if a lifting device is available, to the back mounting plate. See <strong>ARFI-10 EMC Filter Installation Guide</strong> [SAFE68317941 (English)].</td>
<td><img src="image5" alt="Left side view of the installation without side panel and EMC screen" /></td>
</tr>
<tr>
<td>6</td>
<td>Connect the switch fuse to the EMC filter, and the EMC filter to the contactor with laminated copper bars. Connect laminated copper bars to the output of the contactor.</td>
<td><img src="image6" alt="Left side view of the installation without side panel and EMC screen" /></td>
</tr>
<tr>
<td>7</td>
<td>Fasten the back mounting plate to the enclosure frame 70 mm from the back vertical profile. In this location, the drive module will face the enclosure door thus allowing no hot air recirculation into the drive module ventilation grating from the inside of the enclosure. See also <strong>Fastening of the back mounting plate</strong> on page 21.</td>
<td><img src="image7" alt="Left side view of the installation without side panel and EMC screen" /></td>
</tr>
<tr>
<td>8</td>
<td>Fasten the drive module to the back mounting plate if not fastened already.</td>
<td><img src="image8" alt="Left side view of the installation without side panel and EMC screen" /></td>
</tr>
<tr>
<td>Step</td>
<td>Instruction</td>
<td>Photo</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td>9</td>
<td>Assemble the top entry clear plastic busbar shroud.</td>
<td><img src="image1" alt="Step 9 Instructions" /></td>
</tr>
<tr>
<td>10</td>
<td>Connect the laminated copper bars to the input terminals of the drive module.</td>
<td><img src="image2" alt="Step 10 Instructions" /></td>
</tr>
<tr>
<td>11</td>
<td>Fasten the top entry clear plastic busbar shroud to the drive module.</td>
<td><img src="image3" alt="Step 11 Instructions" /></td>
</tr>
<tr>
<td>Step</td>
<td>Instruction</td>
<td>Photo</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td>12</td>
<td>Fasten the EMC screen and clear plastic shroud to the drive module.</td>
<td><img src="image" alt="EMC screen and clear plastic shroud" /></td>
</tr>
</tbody>
</table>

**Clear plastic shroud**

(included in ACS800-04M bottom exit shroud kit +B060)

- 470 (18.50)
- 215 (8.46)
- 252 (9.92)

**Note:** Remove the protective film from the shroud surfaces.
If the EMC screen is not used, protect the output terminals against contact at the left-hand side also with the clear plastic shroud.

See the dimensional drawing on page 49.
13 Fasten the air baffle to the fastening points of the drive module and to the support rail with screws.

The air baffle is needed for preventing hot air from entering the cool area of the cabinet.

14 Fasten the back panel of the enclosure.

15 Fasten the side panels of the enclosure.

Drive module of frame size R7 with bottom exit
<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
<th>Photo</th>
</tr>
</thead>
</table>
| 16   | Fasten the roof plate:  
1. Cut an opening to the roof wire mesh for the upper edge of the air baffle. Place the mesh on the top of the enclosure frame.  
2. Fasten the enclosure roof plate above the mesh with four 50 mm spacers at the corners. | ![Photo of the frame with mesh and fasteners] |
| 17   | Fasten the door devices. See *RPMP-11/13 Control Panel Mounting Platform Kit Installation Guide* [3AFE68400643 (English)].  
Install the ventilation gratings on the door:  
1. Cover the edges of the cuttings with copper tape.  
2. Fasten the metal gratings (2a) and the EMC compatible fan-and-air-filter unit (2b).  
3. Place the metal mesh between the lower grating and the outer louvred grating.  
4. Push the louvred grating onto its place. | ![Images showing the installation process] |
| 18   | Fasten the EMC gasket strip to the door as shown on page 13. | ![Image showing the gasket strip installation] |

*Drive module of frame size R7 with bottom exit*
<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
<th>Photo</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Install the C-rails and clamps for cable strain relief.</td>
<td><img src="drive_module_of_frame_size_r7_with_bottom_exit.jpg" alt="Image" /></td>
</tr>
<tr>
<td>20</td>
<td>Fasten the PE busbar. The PE busbar is provided for grounding of the input cable shield and the motor cable shield if the PE terminal of the drive module is not used.</td>
<td><img src="drive_module_of_frame_size_r7_with_bottom_exit.jpg" alt="Image" /></td>
</tr>
<tr>
<td>21</td>
<td>Fasten shrouds over all live parts.</td>
<td><img src="drive_module_of_frame_size_r7_with_bottom_exit.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>
Cable lead-through plates

EMC kit 64331116 contains the lead-throughs without the strain relief plates shown below.

Recommended entry for control cables in first environment installations (360 degrees grounding between the conductive cushions)

Note: Control cable lead-throughs with rubber grommets only may also be possible.

Entries for power cables (conductive sleeves inside the grommets). Cut an adequate hole to the rubber grommet. Lead the cable through the grommet and the conductive sleeve as shown below.

In first environment installations, 360 degrees grounding must be applied to motor cables and is also recommended for input cables.

Installing the power cables

Drive module of frame size R7 with bottom exit
Fastening of the back mounting plate

Fasten the back mounting plate to the enclosure frame at a distance of 70 mm from the back vertical profiles. The attachment in the lower left-hand side corner is shown here.

View of the enclosure frame when the back mounting plate (without the drive module) is fastened.
Fastening of the RDCU Drive Control Unit to the side mounting plate

See RDCU Drive Control Unit Hardware Manual [3AFE64636324 (English)].
Drive module of frame size R7 with bottom exit and Rittal cooling unit

What this chapter contains

This chapter describes the installation of a drive module of frame size R7 with bottom exit into a 600 mm deep, 800 mm wide and 2000 mm high Rittal TS 8 enclosure. A Rittal cooling unit is installed on the side of the enclosure. The degree of protection of the installation is IP54.

Required Rittal parts

<table>
<thead>
<tr>
<th>Rittal model no.</th>
<th>Description</th>
<th>Qty (pcs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS 8806.500</td>
<td>Enclosure with mounting plate, width x height x depth: 800 mm x 2000 mm x 600 mm</td>
<td>1</td>
</tr>
<tr>
<td>TS 8106.235</td>
<td>Side panel for 2000 mm x 600 mm</td>
<td>2</td>
</tr>
<tr>
<td>TS 8612.160</td>
<td>Punched section with mounting flange, outer mounting level for 600 mm horizontal</td>
<td>2</td>
</tr>
<tr>
<td>TS 8614.240</td>
<td>Mounting plate 1100 x 300</td>
<td>1</td>
</tr>
<tr>
<td>DK 7092.000</td>
<td>C-rail 390 mm</td>
<td>1</td>
</tr>
<tr>
<td>DK 7097.000</td>
<td>C-rail cable clamp for cable diameters of 18 to 22 mm</td>
<td>4</td>
</tr>
<tr>
<td>DK 7098.000</td>
<td>C-rail cable clamp for cable diameters of 38 to 42 mm</td>
<td>6</td>
</tr>
<tr>
<td>DK 7828.060</td>
<td>C-rail 600 mm</td>
<td>1</td>
</tr>
<tr>
<td>SK 3332.540</td>
<td>Cooling unit</td>
<td>1</td>
</tr>
<tr>
<td>SV 3568.000</td>
<td>Laminated copper bar Flexibar S. Dimensions: 15.5 mm x 4.8 mm, 2000 mm long</td>
<td>3</td>
</tr>
</tbody>
</table>

For photos and specifications of the parts, refer to www.rittal.com.

ACS800-04M parts

The following ACS800-04M parts are used in the installation:

- drive module of type ACS800-04M-xxxx+B060+E202+H352+J400+J410.

For descriptions of the plus codes, refer to ACS800-04/04M/U4 Cabinet Installation [3AFE68360323 (English)], chapter The ACS800-04/U4 and ACS800-04M: Type code.

Additional parts to be provided by the installer

The following parts, in addition to the Rittal and ACS800-04M parts listed above, are needed in the installation:

- for first environment installations: EMC screen mesh which allows cooling air flow from the cooling unit to the input cable part of the enclosure. See page 26.
• power cable lead-throughs
• control cable lead-throughs
• PE busbar of dimensions 70 mm × 50 mm × 10 mm, copper
• contactor (optional)
• auxiliary voltage transformer when a contactor is installed
• supply disconnecting device and input cable fuses. See the ACS800-04/04M/U4 Hardware Manual [3AFE64671006 (English)] chapters Planning the electrical installation and Technical data.
• terminal for grounding the control cable shields and self-adhesive strain reliefs to be mounted next to the RDCU Drive Control Unit. See page 22.
• shroud over the input cable terminal connections and output connections of the disconnecting device.

Moving, unpacking and assembling the drive module

Follow the instructions given in ACS800-04/04M/U4 Cabinet Installation [3AFE68360323 (English)]. Fasten the bottom exit kit (+H352) to the drive module before beginning to install the drive module into the enclosure.

View of the installation
**Layout of the installation**

This photo shows the final installation with component placing dimensions in millimetres and (inches).

**Note:** A mirrored layout is advantageous for servicing the drive module.

The drive module is placed 30 mm (1.18 in.) from the right-hand side panel. Fastening point distances from the bottom of the back mounting plate are shown.

*required in first environment installations only

* user’s cabling
Cooling air flow

Air baffles at the sides and front top of the drive module are needed for guiding the cooling air from the cooling unit into the drive module through its inlet grating. See chapter Dimensional drawings for the dimensional drawings of the air baffles.

The drive module is fastened to the back mounting plate of the enclosure leaving 50 mm (1.97 in.) free space in front of the module for the air inlet.

EMC screen mesh (needed in first environment installations only, see page 50.)
**Installation steps**

Install the cooling unit according to the manufacturer’s instructions to the side panel of the drive enclosure:

1. Cut openings in the side panel of the enclosure for air input and output and power supply wiring of the cooling unit.
2. Install the cooling unit.
3. Lead the power supply wires through a lead-through grommet into the enclosure.
4. Connect the power supply wires and secure them with cable ties.

*View of the cooling unit power supply wiring inside the enclosure*
Install the components into the enclosure as described in chapter *Drive module of frame size R7 with bottom exit* with the following exceptions:

- Install the enclosure roof plate directly onto the enclosure frame without spacers and a wire mesh (no air outlet through the roof).
- Do not install ventilation gratings and an EMC fan-and-filter unit on the enclosure door (no air inlet through the door).
- Fasten the back mounting plate at the back of the enclosure frame without moving it 70 mm inwards from the back vertical profile. This is needed for allowing air to enter the front grating of the drive module as the front door of the enclosure has no gratings.

- Fasten three air baffles that face the enclosure door:
  - one at the front top of the drive module
  - one at the left-hand side of the drive module
  - one at the right-hand side of the drive module.

See chapter *Dimensional drawings* for the dimensions of the air baffles.
Drive module of frame size R8 and Rittal cooling unit

The drive module must be installed in a flat position (i.e. the vertical busbars on the short side, +H360) in a 600 mm deep enclosure to allow the cooling air flow through the drive module. In a bookshelf position, the drive module would face the enclosure door and block the air flow.

Layout example with cooling unit on the side

![Diagram of drive module installation](image-url)
Layout example with cooling unit on the door

Note: The cooling fan of the drive module can be replaced by removing the drive module from the enclosure.

Drive module of frame size R8 and Rittal cooling unit
Drive module of frame size R8

What this chapter contains

This chapter describes the installation of a drive module of frame size R8 into a 600 mm deep, 800 mm wide and 2000 mm high Rittal TS 8 enclosure. The installation is designed to comply with the limits of IEC/EN 61800-3 for immunity and emissions of electrical equipment in second environment (includes establishments connected to a network not supplying domestic premises). The installer is responsible for the verification. The degree of protection of the installation is IP20.

Required Rittal parts

<table>
<thead>
<tr>
<th>Rittal model no.</th>
<th>Description</th>
<th>Qty (pcs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS 8806.500</td>
<td>Enclosure, width × height × depth: 800 mm × 2000 mm × 600 mm</td>
<td>1</td>
</tr>
<tr>
<td>TS 8106.235</td>
<td>Side panel for 2000 mm × 600 mm</td>
<td>2</td>
</tr>
<tr>
<td>TS 8612.180</td>
<td>Punched section with mounting flange, outer mounting level for 800 mm horizontal</td>
<td>3</td>
</tr>
<tr>
<td>TS 8612.400</td>
<td>Mounting plate</td>
<td>2</td>
</tr>
<tr>
<td>TS 8614.640</td>
<td>Mounting plate: 500 mm × 300 mm</td>
<td>1</td>
</tr>
<tr>
<td>TS 8614.840</td>
<td>Mounting plate: 700 mm × 300 mm</td>
<td>1</td>
</tr>
<tr>
<td>DK 7097.000</td>
<td>C-rail cable clamp for cable diameters of 18 to 22 mm</td>
<td>4</td>
</tr>
<tr>
<td>DK 7099.000</td>
<td>C-rail cable clamp for cable diameters of 56 to 64 mm</td>
<td>6</td>
</tr>
<tr>
<td>DK 7828.060</td>
<td>C-rail 600 mm</td>
<td>3</td>
</tr>
<tr>
<td>DK 7967.000</td>
<td>50 mm spacer for roof plate</td>
<td>4</td>
</tr>
<tr>
<td>PS 4199.000</td>
<td>Spacer bracket</td>
<td>?</td>
</tr>
<tr>
<td>PS 4375.000</td>
<td>Punched section without mounting flange 395 mm</td>
<td>2</td>
</tr>
<tr>
<td>PS 4396.000</td>
<td>Support rail for 600 mm enclosure depth</td>
<td>2</td>
</tr>
<tr>
<td>PS 4944.000</td>
<td>Support rail 555 mm</td>
<td>1</td>
</tr>
<tr>
<td>SK 3326.200</td>
<td>Air filter 323 mm for 292 mm × 292 mm door ventilation holes</td>
<td>3</td>
</tr>
<tr>
<td>SK 3326.607</td>
<td>EMC compatible fan-and-air-filter unit 700/720 m³/h, 230 V, 50/60 Hz</td>
<td>1</td>
</tr>
<tr>
<td>SV 3574.000</td>
<td>Laminated copper bar Flexibar S. Dimensions: 32 mm × 10 mm, 2000 mm long</td>
<td>3</td>
</tr>
</tbody>
</table>

For photos and specifications of the parts, refer to www.rittal.com.
ACS800-04M parts

The following ACS800-04 parts are used in the installation:

• drive module of type ACS800-04M-xxxx+B060+H354+H355+H356+H362+J400+J410.

For descriptions of the plus codes, refer to ACS800-04/04M/U4 Cabinet Installation [3AFE68360323 (English)], chapter The ACS800-04/U4 and ACS800-04M: Type code.

Additional parts to be provided by the installer

The following parts, in addition to the Rittal and ACS800-04M parts listed above, are needed in the installation:

• air baffle, see 37.
• 800 mm × 600 mm piece of wire mesh with max. 10 mm mesh size for fulfilling IP20 degree of protection of the cabinet. The mesh is placed on the top of the cabinet frame under the 50 mm spacers on which the cabinet roof lies. See page 39.
• power cable lead-throughs. An example with rubber grommets and a strain relief bracket is shown on page 40. EMC power cable lead-throughs are available from ABB with code 64331116, refer to page 11.
• control cable lead-throughs. An example is shown on page 40.
• PE busbar of dimensions 70 mm × 50 mm ×10 mm, copper
• contactor (optional)
• auxiliary voltage transformer when a contactor is installed
• supply disconnecting device and input cable fuses. See ACS800-04/04M/U4 Hardware Manual [3AFE64671006 (English)], chapters Planning the electrical installation and Technical data.
• terminal for grounding the control cable shields and self-adhesive strain reliefs to be mounted next to the RDCU Drive Control Unit
• shroud over the input cable terminal connections and output connections of the disconnecting device.

Moving, unpacking and assembling the drive module

Follow the instructions given in ACS800-04/04M/U4 Cabinet Installation [3AFE68360323 (English)].
Layout of the installation

This photo shows the final installation with component placing dimensions in millimetres and (inches).

**Note:** A mirrored layout is advantageous for servicing the drive module.

- **Base plate:** 715 (28.15)
- **C-rail 600 mm:** 500 mm × 300 mm
- **Switch fuse:** 195 (7.68), 530 (20.87)
- **455 (17.91) from the door edge:**
- **Air baffle:** SK 3326.607.
- **Cutting in the door:** 115 × 240 (4.53 × 9.45)
- **Air filter:** SK 3326.200.
- **Cutting in the door:** 292 × 292 (11.50 × 11.50)
- **EMC compatible fan-and-air-filter unit SK 3326.607. 75 (2.95) from the door edge:**
- **PE Vertical busbar shroud:**
- **Support rail PS 4944.000:**
- **C-rail 600 mm:**
- **Removed support rail:**
- **Contactor:**
- **Auxiliary voltage transformer:**
- **C-rail 600 mm:**
- **Cutting in the door:**
- **Side mounting plate:**
- **Mounting plate:** TS 8614.640 (2 pcs)
- **Mounting plate:** TS 8612.400 (2 pcs)
- **Mounting plate:**
- **C-rail 600 mm:**
- **Drive module:**
- **Vertical busbar shroud:**
- **Support rail PS 4944.000:**
- **User’s cabling:**
**Installation steps**

<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
<th>Photo</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fasten the base plates and lead-through plates to the enclosure frame. See also section View of base plates and cable lead-throughs fastened on page 40.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Fasten the punched sections to the back vertical profiles of the enclosure frame. See also section Fastening of the punched sections on page 41.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Fasten the side mounting plate to the enclosure frame.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Fasten the support rails onto which the drive module will be placed to the punched sections of the enclosure frame. See section Fastening the drive pedestal to the enclosure frame on page 41.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fasten the vertical output busbars to the drive pedestal.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Place the pedestal onto the support rails and fasten the pedestal to the enclosure frame. See section Fastening the drive pedestal to the enclosure frame on page 41.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Fasten the contactor and auxiliary voltage transformer to the back mounting plate and fasten the mounting plate to the enclosure frame. See section Fastening of the back mounting plate on page 41.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Fasten the devices to the side mounting plate.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Slide the drive module onto the pedestal, connect the internal busbars and fasten the module to the pedestal as shown in ACS800-04/04M/U4 Cabinet Installation (3AFE68360323 (English)).</td>
<td></td>
</tr>
<tr>
<td>Step</td>
<td>Instruction</td>
<td>Photo</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>10</td>
<td>Fasten the drive module by its top to the back punched section.</td>
<td><img src="Image" alt="Contactor" /></td>
</tr>
<tr>
<td>11</td>
<td>Fasten the switch fuse to the enclosure frame. Connect the switch fuse to the contactor with laminated copper bars. Connect laminated copper bars to the output of the contactor. Fasten a C-rail to the top of the enclosure frame and support the laminated busbars to the C-rail.</td>
<td><img src="Image" alt="Side view" /> <img src="Image" alt="Front view" /></td>
</tr>
<tr>
<td>Step</td>
<td>Instruction</td>
<td>Photo</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td>12</td>
<td>Step drill lead-throughs in the top cover of the top entry clear plastic busbar shroud. Pass the laminated copper bars through the lead-throughs and the lower part of the shroud.</td>
<td><img src="image1.jpg" alt="Step drill lead-throughs for the busbars." /> Remove the protective film.</td>
</tr>
<tr>
<td>13</td>
<td>Connect the laminated copper bars to the input terminals of the drive module.</td>
<td><img src="image2.jpg" alt="Top entry busbar shroud fastened" /></td>
</tr>
<tr>
<td>14</td>
<td>Fasten the top entry clear plastic busbar shroud to the drive module.</td>
<td><img src="image3.jpg" alt="Top entry busbar shroud fastened" /></td>
</tr>
</tbody>
</table>

*Drive module of frame size R8*
<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
<th>Photo</th>
</tr>
</thead>
</table>
| 15   | Fasten the air baffle to the fastening points of the drive module and to the support rail with screws. | ![Air baffle fastened](image)  
*The air baffle is needed for preventing hot air from entering the cool area of the cabinet.*  
*Cooling air flow into the drive module and cabinet*  
*Cutting for control wiring*  
*Cutting for laminated copper bars*  
*Fasten the baffle by its top to the support rail (PS 4944.000) which is fastened to the enclosure frame top.*  
*Fasten the baffle by its bottom to the drive module side top fastening points.*  
*Cooling air flow (front view)*  
*Cooling air flow (side view)* |
<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
<th>Photo</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Fasten the RDCU Drive Control Unit. See RDCU Drive Control Unit Hardware Manual [3AFE64636324 (English)]. Fasten a terminal for grounding the control cable shields and self-adhesive strain reliefs.</td>
<td><img src="drive_module_frame_R8" alt="Image" /></td>
</tr>
<tr>
<td>17</td>
<td>Fasten the clear plastic vertical busbar shroud on the output busbars of the drive module.</td>
<td><img src="vertical_busbar_shroud" alt="Image" /></td>
</tr>
</tbody>
</table>

**Note:** Remove the protective film from the shroud surfaces.

Cut the corner piece to make space for the PE terminal of the drive module.

**Vertical busbar shroud fastened**

When connecting the power cables, remove the front (and top and side) shroud by undoing the fastening screws.
<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
<th>Photo</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Fasten the back panel of the enclosure.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Fasten the side panels of the enclosure.</td>
<td></td>
</tr>
</tbody>
</table>
| 20   | Fasten the roof plate:  
1. Cut an opening to the roof wire mesh for the upper edge of the air baffle. Place the mesh on the top of the enclosure frame.  
2. Fasten the enclosure roof plate above the mesh with four 50 mm spacers at the corners. | ![Photo of roof plate installation] |
| 21   | Remove the vertical support rail on the hinged side of the enclosure door. See page 33 |  |
| 22   | Cut openings in the door for the ventilation gratings, control panel mounting platform and other devices. Fasten and wire the door devices. See RPMP-11/13 Control Panel Mounting Platform Kit Installation Guide [3AFE68400643 (English)].  
Install the ventilation gratings on the door as follows:  
1. Fasten the gratings (1a) and the EMC compatible fan-and-air-filter unit (1b).  
2. Place the air filter mat between the lower grating and the outer louvre grating.  
3. Push the louvre grating onto its place. | ![Photo of ventilation gratings installation] |
<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
<th>Photo</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Install the C-rails and clamps for cable strain relief.</td>
<td><img src="image1.jpg" alt="Image of C-rails and clamps" /></td>
</tr>
<tr>
<td>24</td>
<td>Fasten the PE busbar. The PE busbar is provided for grounding of the input cable shield and the motor cable shield if the PE terminal of the drive module is not used.</td>
<td><img src="image2.jpg" alt="Image of PE busbar" /></td>
</tr>
<tr>
<td>25</td>
<td>Fasten shrouds over all live parts.</td>
<td><img src="image3.jpg" alt="Image of shrouds" /></td>
</tr>
</tbody>
</table>

**View of base plates and cable lead-throughs fastened**

- Input cable lead-throughs
- Motor cable lead-throughs
- Control cable lead-throughs

*Drive module of frame size R8*
Fastening of the punched sections

Fastening the drive pedestal to the enclosure frame

Fastening of the back mounting plate
Drive module of frame size R8
Dimensional drawings

What this chapter contains

This chapter contains the dimensional drawings of the fastening points in the drive modules used in the installation examples in this manual. Dimensional drawings of air baffles and EMC screens are also shown. The dimensions are given in millimetres. 1 mm = 0.03936996 in..

For other dimensional drawings, refer to ACS800-04/04M/U4 Cabinet Installation [3AFE68360323 (English)].
Frame size R7

Dimensional drawings
Frame size R8

Dimensional drawings
Air baffles for the enclosure with drive module of frame size R7 and Rittal cooling unit

The air baffles of the layout on page 26 are shown below.

Air baffle at the front top of the drive module
Air baffle at the right-hand side of the drive module
Air baffle at the left-hand side of the drive module

Dimensional drawings

**Material:** POLYCARBONATE (PC) SHEET 2mm
- UV STABILITY, UL94-V2
- LEXAN 12000 1/2 or equivalent
- UNMARKED BEND RADIUS R=1.5mm
- GENERAL TOLERANCE: ISO 2768-M
EMC screen for the enclosure with drive module of frame size R7

The EMC screen used in the installation on page 16 is shown below.
EMC screen mesh for the enclosure with drive module of frame size R7 and Rittal cooling unit

The EMC screen mesh used in the installation on page 26 is shown below.