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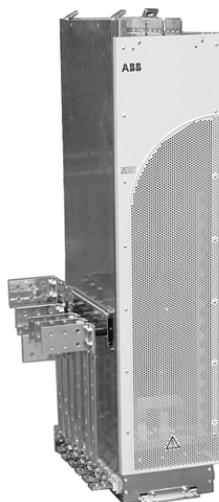
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# ПРОМЫШЛЕННЫЕ ПРИВОДЫ

## Техническое описание на преобразователи ACS800-04, ACS800-U4, ACS800-04M



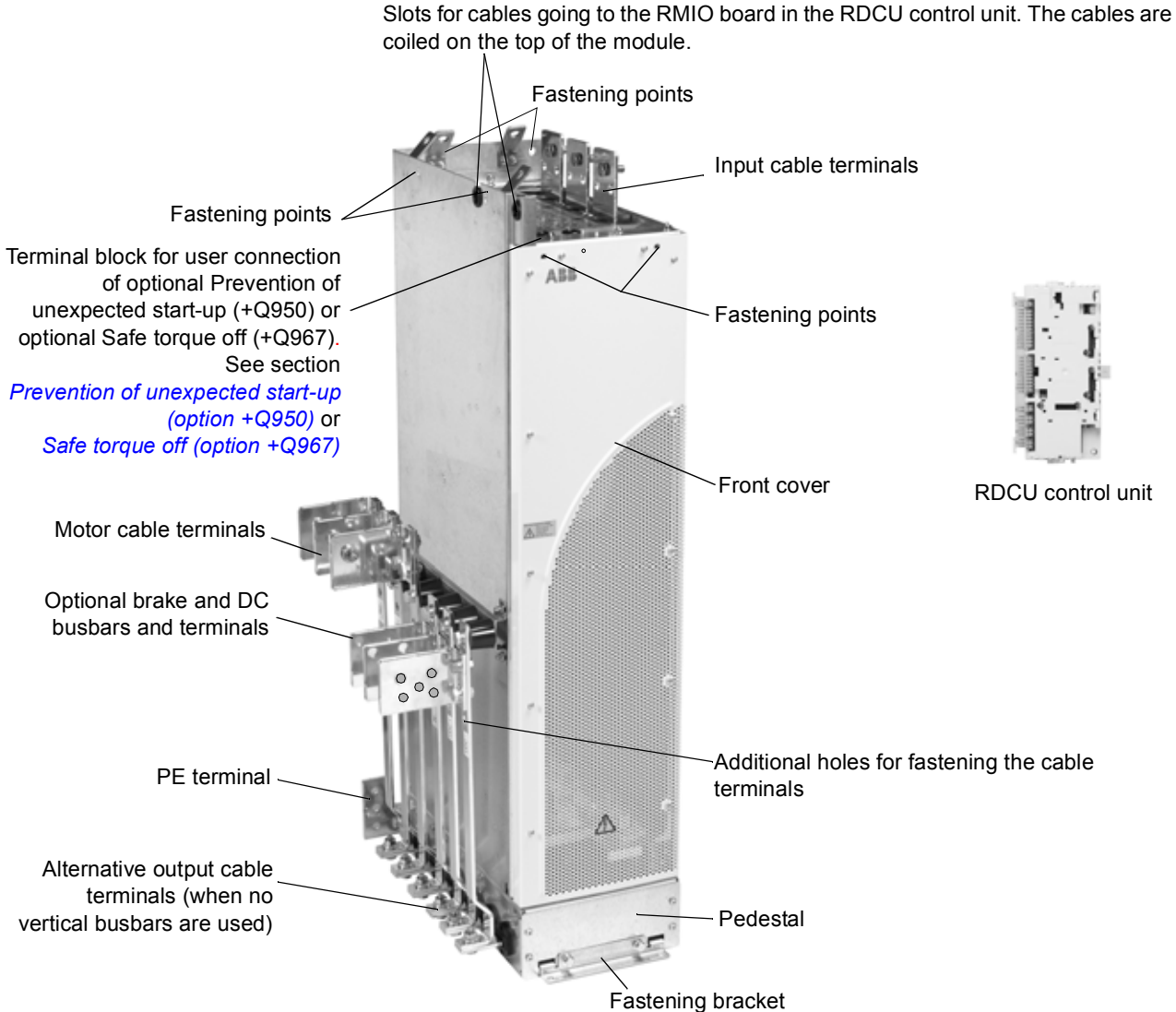
# Operation principle and hardware description

## What this chapter contains

This chapter describes the construction and operating principle of the drive in short.

## ACS800-04/U4 product overview

The ACS800-04/U4 is an IP00 drive module for controlling AC motors. It is to be installed into a cabinet by the customer with base or wall fastening. The input cable terminals are located at the top of the unit whereas the motor cable terminals are located at the left- or right-hand side of the unit. The unit is delivered pre-assembled with mounting pedestal and output busbars.

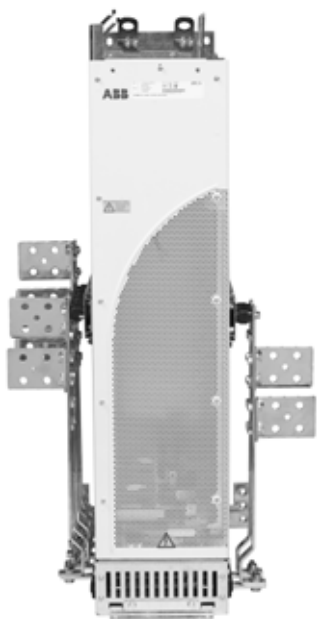


## ACS800-04M product overview

The ACS800-04M is delivered as non-pre-assembled kits, which provide more alternatives in assembling the units than the basic ACS800-04.

### Example configurations

Frame size R7



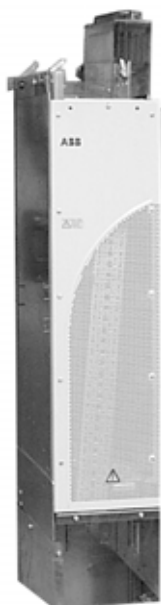
Motor and brake busbars on the left-hand long side of the module and DC busbars on the right-hand side



Motor and brake busbars on the right-hand long side of the module and DC busbars on the left-hand side



Output busbars on the short side of the module

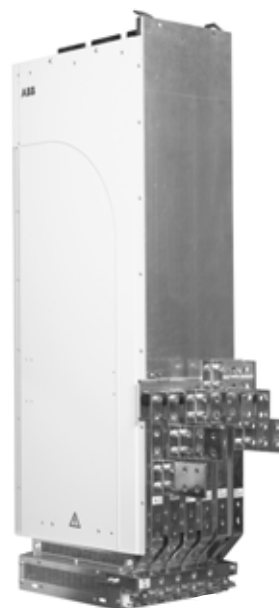


Frame size R7 with bottom exit (optional top entry busbar shroud and bottom exit shroud included). Output busbars are located at the base of the module.



RDCU control unit

Frame size R8



Output busbars on the short side of the module

## Type code

The type code contains information on the specifications and configuration of the drive. The first digits from left express the basic configuration (for example, ACS800-04-0170-5). The optional selections are given thereafter, separated by plus signs (for example, +E202). The main selections are described below. Not all selections are available for all types. For more information, refer to *ACS800 Ordering Information* (3AFY64556568, available on request).

Type code for ACS800-04 and ACS800-U4 pre-assembled units		
Selection	Alternatives	
<b>Product series</b>	ACS800 product series	
<b>Type</b>	04	Drive module. When no options are selected: 6-pulse diode input bridge, IP00, top entry of cables, side exit, RDCU drive control unit, no control panel, no EMC filter, Standard Control Program, pedestal with output on the long side, output busbar set for motor, base and wall mounting brackets, one set of manuals. Pre-assembled unit.
	U4	Drive module (USA). When no options are selected: 6-pulse diode bridge, UL open type, open chassis, top entry of cables, side exit, no control panel, no EMC filter, US version of the Standard Control Program (three-wire start/stop as default setting), common mode filter in frame size R8, pedestal with output on the long side, output busbar set for motor, base and wall mounting brackets, one set of manuals.
<b>Size</b>	Refer to <a href="#">Technical data: IEC data</a> or <a href="#">NEMA data</a> .	
<b>Voltage range (nominal rating in bold)</b>	2	208 220/ <b>230</b> /240 VAC
	3	380/ <b>400</b> /415 VAC
	5	380/400/415/440/460/480/ <b>500</b> VAC
	7	525/575/600/ <b>690</b> VAC
<b>Option codes (+ codes)</b>		
<b>Resistor braking</b>	D150	brake chopper and busbars for brake resistor and DC connection
<b>Filter</b>	E210	EMC/RFI filter for second environment TN/IT (grounded/ungrounded) system
	E208	common mode filter
<b>Pedestal and output busbars</b>	0H354	no pedestal
<b>Control panel</b>	J400	CDP 312R control panel including a 3-metre panel connection cable
	J410	RPMP-11 control panel mounting platform kit including a 3-metre panel connection cable but no control panel
	J413	RPMP-21 control panel holder
<b>Fieldbus</b>	K...	Refer to <i>ACS800 Ordering Information</i> (3AFY64556568).
<b>I/O</b>	L...	
<b>Control program</b>	N...	
<b>Language of manual</b>	R...	
<b>Specialities</b>	P901	coated boards
	P904	extended warranty
<b>Safety features</b>	Q950	Prevention of unexpected start-up (not to be used with +Q967), including 500 mm (19.68 in.) cable outside the drive module in frame size R7, 600 mm (23.62 in.) cable outside the drive module in frame size R8.
	Q967	Safe torque off (STO) (not to be used with +Q950), including 500 mm (19.68 in.) cable outside the drive module in frame size R7, 600 mm (23.62 in.) cable outside the drive module in frame size R8.

Type code for ACS800-04M non-pre-assembled units (delivered as kits)		
Selection	Alternatives	
Product series	ACS800 product series	
Type	04M	Drive module. When no options are selected: 6-pulse diode input bridge, IP00, top entry of cables, RDCU drive control unit, no control panel, no EMC filter, Standard Control Program, no pedestal, no output busbars, one set of manuals.
Size		
Voltage range (nominal rating in bold)	2	208 220/ <b>230</b> /240 VAC
	3	380/ <b>400</b> /415 VAC
	5	380/400/415/440/460/480/ <b>500</b> VAC
	7	525/575/600/ <b>690</b> VAC
Option codes (+ codes)		
Shrouds	B060	Frame size R7: clear plastic shrouds for bottom exit kit (+H352) and input terminals. Frame size R8: clear plastic shrouds for vertical busbars and input terminals in bookshelf mounting (+H354 and +H355)
Resistor braking	D150	ake chopper
Filter	E202	EMC/RFI filter for first environment TN (grounded) system, restricted (the A limits)
	E210	EMC/RFI filter for second environment TN/IT (grounded/ungrounded) system
	E208	common mode filter
Pedestal and output busbars	H352	bottom exit kit for frame size R7
	H354	pedestal with output on the long side (bookshelf)
	H355	vertical busbars and support brackets for AC output connection
	H356	pedestal (and adapter with +H360) busbar kit for brake resistor and DC connection
	H360	pedestal with output on the short side (flat)
	H362	vertical busbars (and support brackets with +H360) for DC output connection
	H363	busbar kit for DC and brake outputs on different long sides of the pedestal (+H356 required, not available for +H360)
Control panel	J400	CDP 312R control panel including a 3-metre panel connection cable
	J410	RPMP-11 control panel mounting platform kit including a 3-metre panel connection cable but no control panel
	J413	RPMP-21 control panel holder
Fieldbus	K...	Refer to <i>ACS800 Ordering Information</i> (3AFY64556568).
I/O	L...	
Control program	N...	
Language of manual	R...	
Specialities	P901	coated boards
	P904	extended warranty
Safety features	Q950	Prevention of unexpected start-up (not to be used with +Q967), including 500 mm (19.68 in.) cable outside the drive module in frame size R7, 600 mm (23.62 in.) cable outside the drive module in frame size R8.
	Q967	Safe torque off (STO) (not to be used with +Q950), including 500 mm (19.68 in.) cable outside the drive module in frame size R7, 600 mm (23.62 in.) cable outside the drive module in frame size R8.

**Note:** Type code +0N664 means that the drive module has been installed inside a cabinet at the factory. This type code is for ABB internal use only.

# Technical data

## What this chapter contains

This chapter contains the technical specifications of the drive, e.g. the ratings, sizes and technical requirements, provisions for fulfilling the requirements for CE and other markings, and warranty policy.

## IEC data

### Ratings

The IEC ratings for the ACS800-04 with 50 Hz and 60 Hz supplies are given below. The symbols are described below the table.

ACS800-04 size	Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Frame size	Air flow m <sup>3</sup> /h	Heat dissipation W
	$I_{\text{cont.max}}$ A	$I_{\text{max}}$ A	$P_{\text{cont.max}}$ kW	$I_{2N}$ A	$P_N$ kW	$I_{2hd}$ A	$P_{hd}$ kW			
Three-phase supply voltage 208 V, 220 V, <b>230 V</b> or 240 V										
-0080-2	214	326	55	211	55	170	45	R7	540	2900
-0100-2	253	404	75	248	75	202	55	R7	540	3450
-0120-2	295	432	90	290	90	240 <sup>4)</sup>	55	R7	540	4050
-0140-2	405	588	110	396	110	316	90	R8	1220	5300
-0170-2	447	588	132	440	132	340	90	R8	1220	6100
-0210-2	528	588	160	516	160	370	110	R8	1220	6700
-0230-2	613	840	160	598	160	480	132	R8	1220	7600
-0260-2	693	1017	200	679	200	590 <sup>2)</sup>	160	R8	1220	7850
-0300-2	720	1017	200	704	200	635 <sup>3)</sup>	200	R8	1220	8300
Three-phase supply voltage 380 V, <b>400 V</b> or 415 V										
-0140-3	206	326	110	202	110	163	90	R7	540	3000
-0170-3	248	404	132	243	132	202	110	R7	540	3650
-0210-3	289	432	160	284	160	240 <sup>1)</sup>	132	R7	540	4300
-0260-3	445	588	200	440	200	340	160	R8	1220	6600
-0320-3	521	588	250	516	250	370	200	R8	1220	7150
-0400-3	602	840	315	590	315	477	250	R8	1220	8100
-0440-3	693	1017	355	679	355	590 <sup>2)</sup>	315	R8	1220	8650

ACS800-04 size	Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Frame size	Air flow m <sup>3</sup> /h	Heat dissipation W
	$I_{cont.max}$ A	$I_{max}$ A	$P_{cont.max}$ kW	$I_{2N}$ A	$P_N$ kW	$I_{2hd}$ A	$P_{hd}$ kW			
-0490-3	720	1017	400	704	400	635 <sup>3)</sup>	355	R8	1220	9100
Three-phase supply voltage 380 V, 400 V, 415 V, 440 V, 460 V, 480 V or <b>500 V</b>										
-0170-5	196	326	132	192	132	162	110	R7	540	3000
-0210-5	245	384	160	240	160	192	132	R7	540	3800
-0260-5	289	432	200	284	200	224	160	R7	540	4500
-0320-5	440	588	250	435	250	340	200	R8	1220	6850
-0400-5	515	588	315	510	315	370	250	R8	1220	7800
-0440-5	550	840	355	545	355	490	315	R8	1220	7600
-0490-5	602	840	400	590	400	515 <sup>2)</sup>	355	R8	1220	8100
-0550-5	684	1017	450	670	450	590 <sup>2)</sup>	400	R8	1220	9100
-0610-5	718	1017	500	704	500	632 <sup>3)</sup>	450	R8	1220	9700
Three-phase supply voltage 525 V, 550 V, 575 V, 600 V, 660 V or <b>690 V</b>										
-0140-7	134	190	132	125	110	95	90	R7	540	2800
-0170-7	166	263	160	155	132	131	110	R7	540	3550
-0210-7	166/ 203*	294	160	165/ 195*	160	147	132	R7	540	4250
-0260-7	175/ 230*	326	160/ 200*	175/ 212*	160/ 200*	163	160	R7	540	4800
-0320-7	315	433	315	290	250	216	200	R8	1220	6150
-0400-7	353	548	355	344	315	274	250	R8	1220	6650
-0440-7	396	656	400	387	355	328	315	R8	1220	7400
-0490-7	445	775	450	426	400	387	355	R8	1220	8450
-0550-7	488	853	500	482	450	426	400	R8	1220	8300
-0610-7	560	964	560	537	500	482	450	R8	1220	9750

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- 1) 50% overload is available for one minute every 5 minutes if ambient temperature is less than 25 °C (77 °F). If ambient temperature is 40 °C (104 °F), max. available overload is 37%.
- 2) 50% overload is available for one minute every 5 minutes if ambient temperature is less than 30 °C (86 °F). If ambient temperature is 40 °C (104 °F), max. available overload is 40%.
- 3) 50% overload is available one minute every 5 minutes if ambient temperature is less than 20 °C (68 °F). If ambient temperature is 40 °C (104 °F), max. available overload is 30%.
- 4) 50% overload is available one minute every 5 minutes if ambient temperature is less than 35 °C (95 °F). If ambient temperature is 40 °C (104 °F), max. available overload is 45%.

\* higher value applicable if output frequency is above 41 Hz

## Symbols

### Nominal ratings

$I_{\text{cont.max}}$  continuous rms output current. No overload capability at 40 °C (104 °F).

$I_{\text{max}}$  maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature.

### Typical ratings:

#### No-overload use

$P_{\text{cont.max}}$  typical motor power. The power ratings apply to most IEC 60034 motors at the nominal voltage, 230 V, 400 V, 500 V or 690 V.

#### Light-overload use (10% overload capability)

$I_{2N}$  continuous rms current. 10% overload is allowed for one minute every 5 minutes.

$P_N$  typical motor power. The power ratings apply to most IEC 60034 motors at the nominal voltage, 230 V, 400 V, 500 V or 690 V.

#### Heavy-duty use (50% overload capability)

$I_{2hd}$  continuous rms current. 50% overload is allowed for one minute every 5 minutes.

$P_{hd}$  typical motor power. The power ratings apply to most IEC 60034 motors at the nominal voltage, 230 V, 400 V, 500 V or 690 V.

## Sizing

The current ratings are the same regardless of the supply voltage within one voltage range. To achieve the rated motor power given in the table, the rated current of the drive must be higher than or equal to the rated motor current.

**Note 1:** The maximum allowed motor shaft power is limited to  $1.5 \cdot P_{hd}$ ,  $1.1 \cdot P_N$  or  $P_{\text{cont.max}}$  (whichever value is greatest). If the limit is exceeded, motor torque and current are automatically restricted. The function protects the input bridge of the drive against overload. If the condition exists for 5 minutes, the limit is set to  $P_{\text{cont.max}}$ .

**Note 2:** The ratings apply at ambient temperature of 40 °C (104 °F). In lower temperatures the ratings are higher (except  $I_{\text{max}}$ ).

**Note 3:** Use the DriveSize PC tool for a more accurate dimensioning if the ambient temperature is below 40 °C (104 °F) or the drive is loaded cyclically.

## Derating

The load capacity (current and power) decreases if the installation site altitude exceeds 1000 metres (3281 ft), or if the ambient temperature exceeds 40 °C (104 °F).

**Note:** If the ingoing cooling air temperature of the drive module is max. 40 °C (104 °F), no derating of the drive output current is needed despite the cabinet temperature rising over 40 °C (104 °F).



### Temperature derating

In the temperature range of +40 °C (+104 °F) to +50 °C (+122 °F), the rated output current is decreased by 1% for every additional 1 °C (1.8 °F). The output current is calculated by multiplying the current given in the rating table by the derating factor.

Example If the ambient temperature is 50 °C (+122 °F), the derating factor is  $100\% - 1 \frac{\%}{^{\circ}\text{C}} \cdot 10^{\circ}\text{C} = 90\%$  or 0.90.

The output current is then  $0.90 \cdot I_{2N}$ ,  $0.90 \cdot I_{2hd}$  or  $0.90 \cdot I_{cont.max}$ .

### Altitude derating

At altitudes from 1000 to 4000 m (3281 to 13123 ft) above sea level, the derating is 1% for every 100 m (328 ft). For a more accurate derating, use the DriveSize PC tool.

### Fuses

gG and aR fuses for protection against short-circuit in the input power cable or drive are listed below. Either fuse type may be used if it operates rapidly enough. Choose between gG and aR fuses according to the table under or verify the operating time by **checking that the short-circuit current of the installation is at least the value given in the fuse table**. The short-circuit current can be calculated as follows:

$$I_{k2-ph} = \frac{U}{2 \cdot \sqrt{R_c^2 + (Z_k + X_c)^2}}$$

where

$I_{k2-ph}$  = short-circuit current in symmetrical two-phase short-circuit (A)

$U$  = network line-to-line voltage (V)

$R_c$  = cable resistance (ohm)

$Z_k = z_k \cdot U_N^2 / S_N$  = transformer impedance (ohm)

$z_k$  = transformer impedance (%)

$U_N$  = transformer rated voltage (V)

$S_N$  = nominal apparent power of the transformer (kVA)

$X_c$  = cable reactance (ohm).


## Fuse tables

<b>gG fuses</b>								
ACS800-04 size	Input current A	Min. short-circuit current <sup>1)</sup> A	Fuse					
			A	A <sup>2</sup> s	V	Manufacturer	Type	IEC size
Three-phase supply voltage 208 V, 220 V, <b>230 V</b> or 240 V								
-0080-2	201	3820	250	550 000	500	ABB Control	OFAF1H250	1
-0100-2	239	4510	315	1 100 000	500	ABB Control	OFAF2H315	2
-0120-2	285	4510	315	1 100 000	500	ABB Control	OFAF2H315	2
-0140-2	391	8280	500	2 900 000	500	ABB Control	OFAF3H500	3
-0170-2	428	8280	500	2 900 000	500	ABB Control	OFAF3H500	3
-0210-2	506	10200	630	4 000 000	500	ABB Control	OFAF3H630	3
-0230-2	599	10200	630	4 000 000	500	ABB Control	OFAF3H630	3
-0260-2	677	13500	800	7 400 000	500	ABB Control	OFAF3H800	3
-0300-2	707	13500	800	7 400 000	500	ABB Control	OFAF3H800	3
Three-phase supply voltage 380 V, <b>400 V</b> or 415 V								
-0140-3	196	3820	250	550 000	500	ABB Control	OFAF1H250	1
-0170-3	237	4510	315	1 100 000	500	ABB Control	OFAF2H315	2
-0210-3	286	4510	315	1 100 000	500	ABB Control	OFAF2H315	2
-0260-3	438	8280	500	2 900 000	500	ABB Control	OFAF3H500	3
-0320-3	501	10200	630	4 000 000	500	ABB Control	OFAF3H630	3
-0400-3	581	10200	630	4 000 000	500	ABB Control	OFAF3H630	3
-0440-3	674	13500	800	7 400 000	500	ABB Control	OFAF3H800	3
-0490-3	705	13500	800	7 400 000	500	ABB Control	OFAF3H800	3

gG fuses								
ACS800-04 size	Input current A	Min. short-circuit current <sup>1)</sup> A	Fuse					
			A	A <sup>2</sup> s	V	Manufacturer	Type	IEC size
Three-phase supply voltage 380 V, 400 V, 415 V, 440 V, 460 V, 480 V or <b>500 V</b>								
-0170-5	191	3820	250	550 000	500	ABB Control	OFAF1H250	1
-0210-5	243	4510	315	1 100 000	500	ABB Control	OFAF2H315	2
-0260-5	291	4510	315	1 100 000	500	ABB Control	OFAF2H315	2
-0320-5	424	8280	500	2 900 000	500	ABB Control	OFAF3H500	3
-0400-5	498	10200	630	4 000 000	500	ABB Control	OFAF3H630	3
-0440-5	543	10200	630	4 000 000	500	ABB Control	OFAF3H630	3
-0490-5	590	10200	630	4 000 000	500	ABB Control	OFAF3H630	3
-0550-5	669	13500	800	7 400 000	500	ABB Control	OFAF3H800	3
-0610-5	702	13500	800	7 400 000	500	ABB Control	OFAF3H800	3
Three-phase supply voltage 525 V, 550 V, 575 V, 600 V, 660 V or <b>690 V</b>								
-0140-7	126	2400	160	220 000	690	ABB Control	OFAA1GG160	1
-0170-7	156	2850	200	350 000	690	ABB Control	OFAA1GG200	1
-0210-7	191	3820	250	700 000	690	ABB Control	OFAA2GG250	2
-0260-7	217	3820	250	700 000	690	ABB Control	OFAA2GG250	2
-0320-7	298	4510	315	820 000	690	ABB Control	OFAA2GG315	2
-0400-7	333	6180	400	1 300 000	690	ABB Control	OFAA3GG400	3
-0440-7	377	8280	500	3 800 000	690	ABB Control	OFAA3H500	3
-0490-7	423	8280	500	3 800 000	690	ABB Control	OFAA3H500	3
-0550-7	468	8280	500	3 800 000	690	ABB Control	OFAA3H500	3
-0610-7	533	10800	630	10 000 000	690	Bussmann	630NH3G-690 **	3
<p>** rated breaking capacity only up to 50 kA  <sup>1)</sup> minimum short-circuit current of the installation</p> <p><b>Note 1:</b></p> <p><b>Note 2:</b> In multicable installations, install only one fuse per phase (not one fuse per conductor).</p> <p><b>Note 3:</b> Larger fuses than the recommended ones must not be used.</p> <p><b>Note 4:</b> Fuses from other manufacturers can be used if they meet the ratings and the melting curve of the fuse does not exceed the melting curve of the fuse mentioned in the table.</p>								


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### Ultrarapid (aR) fuses

ACS800-04 size	Input current A	Min. short-circuit current <sup>1)</sup> A	Fuse					
			A	A <sup>2</sup> s	V	Manufacturer	Type DIN 43620 	Size
Three-phase supply voltage 208 V, 220 V, <b>230 V</b> or 240 V								
-0080-2	201	1810	400	105 000	690	Bussmann	170M3819D	DIN1*
-0100-2	239	2210	500	145 000	690	Bussmann	170M5810D	DIN2*
-0120-2	285	2620	550	190 000	690	Bussmann	170M5811D	DIN2*
-0140-2	391	4000	800	465 000	690	Bussmann	170M6812D	DIN3
-0170-2	428	4000	800	465 000	690	Bussmann	170M6812D	DIN3
-0210-2	506	5550	1000	945 000	690	Bussmann	170M6814D	DIN3
-0230-2	599	7800	1250	1 950 000	690	Bussmann	170M8554D	DIN3
-0260-2	677	8850	1400	3 900 000	690	Bussmann	170M8555D	DIN3
-0300-2	707	8850	1400	3 900 000	690	Bussmann	170M8555D	DIN3
Three-phase supply voltage 380 V, <b>400 V</b> or 415 V								
-0140-3	196	1810	400	105 000	690	Bussmann	170M3819D	DIN1*
-0170-3	237	2210	500	145 000	690	Bussmann	170M5810D	DIN2*
-0210-3	286	2620	550	190 000	690	Bussmann	170M5811D	DIN2*
-0260-3	438	4000	800	465 000	690	Bussmann	170M6812D	DIN3
-0320-3	501	5550	1000	945 000	690	Bussmann	170M6814D	DIN3
-0400-3	581	7800	1250	1 950 000	690	Bussmann	170M8554D	DIN3
-0440-3	674	8850	1400	3 900 000	690	Bussmann	170M8555D	DIN3
-0490-3	705	8850	1400	3 900 000	690	Bussmann	170M8555D	DIN3
Three-phase supply voltage 380 V, 400 V, 415 V, 440 V, 460 V, 480 V or <b>500 V</b>								
-0170-5	191	1810	400	105 000	690	Bussmann	170M3819D	DIN1*
-0210-5	243	2210	500	145 000	690	Bussmann	170M5810D	DIN2*
-0260-5	291	2620	550	190 000	690	Bussmann	170M5811D	DIN2*
-0320-5	424	4000	800	465 000	690	Bussmann	170M6812D	DIN3
-0400-5	498	5550	1000	945 000	690	Bussmann	170M6814D	DIN3
-0440-5	543	7800	1250	1 950 000	690	Bussmann	170M8554D	DIN3
-0490-5	590	7800	1250	1 950 000	690	Bussmann	170M8554D	DIN3
-0550-5	669	8850	1400	3 900 000	690	Bussmann	170M8555D	DIN3
-0610-5	702	8850	1400	3 900 000	690	Bussmann	170M8555D	DIN3

Technical data

### Ultraprapid (aR) fuses

ACS800-04 size	Input current A	Min. short-circuit current <sup>1)</sup> A	Fuse					
			A	A <sup>2</sup> s	V	Manufacturer	Type DIN 43620 	Size
Three-phase supply voltage 525 V, 550 V, 575 V, 600 V, 660 V or <b>690 V</b>								
-0140-7	126	1520	350	68 500	690	Bussmann	170M3818D	DIN1*
-0170-7	156	1520	350	68 500	690	Bussmann	170M3818D	DIN1*
-0210-7	191	1610	400	74 000	690	Bussmann	170M5808D	DIN2*
-0260-7	217	1610	400	74 000	690	Bussmann	170M5808D	DIN2*
-0320-7	298	3010	630	275 000	690	Bussmann	170M5812D	DIN2*
-0400-7	333	2650	630	210 000	690	Bussmann	170M6810D	DIN3
-0440-7	377	4000	800	465 000	690	Bussmann	170M6812D	DIN3
-0490-7	423	4790	900	670 000	690	Bussmann	170M6813D	DIN3
-0550-7	468	4790	900	670 000	690	Bussmann	170M6813D	DIN3
-0610-7	533	5550	1000	945 000	690	Bussmann	170M6814D	DIN3
<p>A<sup>2</sup>s value for -7 units at 660 V  <sup>1)</sup> minimum short-circuit current of the installation</p> <p><b>Note 1:</b></p> <p><b>Note 2:</b> In multicable installations, install only one fuse per phase (not one fuse per conductor).</p> <p><b>Note 3:</b> Larger fuses than the recommended ones must not be used.</p> <p><b>Note 4:</b> Fuses from other manufacturers can be used if they meet the ratings and the melting curve of the fuse does not exceed the melting curve of the fuse mentioned in the table.</p>								

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### Quick guide for selecting between gG and aR fuses

The table below is a short cut in selecting between gG and aR fuses. The combinations (cable size, cable length, transformer size and fuse type) in the table fulfil the minimum requirements for the proper operation of the fuse.

ACS800-04 size	Cable type		Supply transformer minimum apparent power $S_N$ (kVA)					
	Copper	Aluminium	Maximum cable length with gG fuses			Maximum cable length with aR fuses		
			10 m	50 m	100 m	10 m	100 m	200 m
Three-phase supply voltage 208 V, 220 V, <b>230 V</b> or 240 V								
-0080-2	3×120 Cu	3×185 Al	120	150	-	81	81	-
-0100-2	3×150 Cu	3×240 Al	140	170	-	96	96	-
-0120-2	3×240 Cu	2 × (3×95) Al	140	170	-	120	120	-
-0140-2	2 × (3×120) Cu	3 × (3×95) Al	250	320	-	160	160	-
-0170-2	2 × (3×120) Cu	3 × (3×95) Al	250	320	-	180	180	-
-0210-2	3 × (3×95) Cu	2 × (3×240) Al	310	400	-	210	230	-
-0230-2	3 × (3×120) Cu	3 × (3×185) Al	310	400	-	240	340	-
-0260-2	3 × (3×150) Cu	3 × (3×240) Al	410	510	-	270	380	-
-0300-2	3 × (3×150) Cu	3 × (3×240) Al	410	510	-	290	380	-
Three-phase supply voltage 380 V, <b>400 V</b> or 415 V								
-0140-3	3×120 Cu	3×185 Al	200	220	260	160	160	160
-0170-3	3×150 Cu	3×240 Al	240	260	310	170	170	170
-0210-3	3×240 Cu	2 × (3×120) Al	240	260	310	200	200	200
-0260-3	3 × (3×70) Cu	3 × (3×120) Al	430	460	560	310	310	310
-0320-3	3 × (3×95) Cu	2 × (3×240) Al	530	600	750	350	350	440
-0400-3	3 × (3×120) Cu	3 × (3×185) Al	530	600	750	410	470	660
-0440-3	3 × (3×150) Cu	3 × (3×240) Al	700	770	930	470	530	730
-0490-3	3 × (3×150) Cu	3 × (3×240) Al	700	770	930	490	530	730
Three-phase supply voltage 380 V, 400 V, 415 V, 440 V, 460 V, 480 V or <b>500 V</b>								
-0170-5	3×120 Cu	3×150 Al	250	270	310	200	200	200
-0210-5	3×150 Cu	3×240 Al	290	320	360	220	220	220
-0260-5	3×240 Cu	2 × (3×120) Al	290	320	360	260	260	260
-0320-5	2 × (3×120) Cu	3 × (3×95) Al	530	570	670	370	370	370
-0400-5	2 × (3×150) Cu	2 × (3×240) Al	660	720	840	440	440	480
-0440-5	3 × (3×95) Cu	3 × (3×150) Al	660	720	840	500	570	760
-0490-5	3 × (3×120) Cu	3 × (3×185) Al	660	720	840	520	570	760
-0550-5	2 × (3×240) Cu	3 × (3×240) Al	880	980	1200	580	670	880
-0610-5	3 × (3×150) Cu	3 × (3×240) Al	880	980	1200	610	670	880

ACS800-04 size	Cable type		Supply transformer minimum apparent power $S_N$ (kVA)					
	Copper	Aluminium	Maximum cable length with gG fuses			Maximum cable length with aR fuses		
			10 m	50 m	100 m	10 m	100 m	200 m
Three-phase supply voltage 525 V, 550 V, 575 V, 600 V, 660 V or 690 V								
-0140-7	3×70 Cu	3×95 Al	220	220	240	160	160	160
-0170-7	3×95 Cu	3×120 Al	260	260	280	190	190	190
-0210-7	3×120 Cu	3×150 Al	340	360	390	230	230	230
-0260-7	3×150 Cu	3×185 Al	340	360	390	260	260	260
-0320-7	3×240 Cu	2 × (3×120) Al	400	410	430	360	360	360
-0400-7	3×240 Cu	3 × (3×70) Al	550	570	610	400	400	400
-0440-7	2 × (3×120) Cu	2 × (3×150) Al	730	780	860	460	460	460
-0490-7	2 × (3×120) Cu	3 × (3×95) Al	730	780	860	510	510	510
-0550-7	2 × (3×150) Cu	3 × (3×120) Al	730	780	860	560	560	560
-0610-7	3 × (3×95) Cu	3 × (3×150) Al	960	1000	1100	640	640	640

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**Note 1:** The supply transformer minimum power in kVA is calculated with a  $z_k$  value of 6% and frequency 50 Hz.

**Note 2:** The table is not intended for transformer selection - that must be done separately.

The following parameters can effect on the correct operation of the protection:

- cable length, i.e. the longer the cable the weaker the fuse protection, as the long cable limits the fault current
- cable size, i.e. the smaller the cable cross-section the weaker the fuse protection, as the small cable size limits the fault current
- transformer size, i.e the smaller the transformer the weaker the fuse protection, as the small transformer limits the fault current
- transformer impedance, i.e. the higher the  $z_k$  the weaker the fuse protection as high impedance limits the fault current.

The protection can be improved by installing a larger supply transformer and/or bigger cables, and in most cases by selecting aR fuses instead of gG fuses. Selection of smaller fuses improves the protection, but may also affect the fuse life time and lead to unnecessary operation of the fuses.

In case of any uncertainty regarding the drive protection, please contact your local ABB.

## Cable types

The table below gives copper and aluminium cable types for different load currents. Cable sizing is based on max. 9 cables laid on a cable ladder side by side, ambient temperature 30 °C, PVC insulation, surface temperature 70 °C (EN/IEC 60204-1 and IEC 60364-5-52:2001). For other conditions, size the cables according to local safety regulations, appropriate input voltage and the load current of the drive.

Copper cables with concentric copper shield		Aluminium cables with concentric copper shield	
Max. load current A	Cable type mm <sup>2</sup>	Max. load current A	Cable type mm <sup>2</sup>
56	3×16	69	3×35
71	3×25	83	3×50
88	3×35	107	3×70
107	3×50	130	3×95
137	3×70	151	3×120
167	3×95	174	3×150
193	3×120	199	3×185
223	3×150	235	3×240
255	3×185	214	2 × (3×70)
301	3×240	260	2 × (3×95)
274	2 × (3×70)	302	2 × (3×120)
334	2 × (3×95)	348	2 × (3×150)
386	2 × (3×120)	398	2 × (3×185)
446	2 × (3×150)	470	2 × (3×240)
510	2 × (3×185)	522	3 × (3×150)
602	2 × (3×240)	597	3 × (3×185)
579	3 × (3×120)	705	3 × (3×240)
669	3 × (3×150)		
765	3 × (3×185)		
903	3 × (3×240)		

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## Cable entries

Mains, motor and brake resistor cable terminal sizes (per phase), maximum accepted cable and tightening torques are given below.

Frame size	U1, V1, W1, U2, V2, W2, UDC+/R+, UDC-, R-				Earthing PE	
	Number of holes per phase	Max. cable mm <sup>2</sup>	Screw	Tightening torque Nm	Screw	Tightening torque Nm
R7	3	1×240 or 2×185	M12	50...75	M10	30...44
R8	3	3×240	M12	50...75	M10	30...44

## Dimensions, weights and noise

Frame size	IP00								Weight kg	Noise dB
	Busbars on the long side (bookshelf)				Busbars on the short side (flat)					
	H mm	W1 mm	W2 mm	D mm	H mm	W3 mm	W4 mm	D mm		
R7	1121	334	427	473	1181	525	631	259	100	71
R8	1564	415	562	568	1596	607	779	403	200	72

H height

W1 width of the basic unit with PE terminal (bookshelf)

W2 width with the cable connection terminal plates on the left side only (bookshelf)  
(R7: width with the cable connection terminal plates on both sides is 579 mm)  
(R8: width with the cable connection terminal plates on both sides is 776 mm)

D depth without fastening brackets  
(R7 bookshelf: depth with fastening brackets is 516 mm)  
(R8 bookshelf: depth with fastening brackets is 571 mm)

W3 width of the basic unit with PE terminal/busbar (flat)

W4 width with the cable connection terminal plates (flat)

Frame size	IP00, with bottom exit			Weight * kg
	H mm	W mm	D mm	
R7	1126	264	471	91

H height without top and bottom exit busbar shrouds

W width

D depth

\* weight without top entry and bottom exit shrouds

## NEMA data

### Ratings

The NEMA ratings for the ACS800-U4 and ACS800-04 with 60 Hz supplies are given below. The symbols are described below the table. For sizing, derating and 50 Hz supplies

ACS800-U4 size ACS800-04 size	$I_{max}$ A	Normal use		Heavy-duty use		Frame size	Air flow ft <sup>3</sup> /min	Heat dissipation BTU/Hr
		$I_{2N}$ A	$P_N$ hp	$I_{2hd}$ A	$P_{hd}$ hp			
Three-phase supply voltage 208 V, 220 V, <b>230 V</b> , 240 V								
-0080-2	326	211	75	170	60	R7	318	9900
-0100-2	404	248	100	202	75	R7	318	11750
-0120-2	432	290	100	240 <sup>4)</sup>	75	R7	318	13750
-0140-2	588	396	150	316	125	R8	718	18100
-0170-2	588	440	150	340	125	R8	718	20800
-0210-2	588	516	200	370	150	R8	718	22750
-0230-2	840	598	200	480	200	R8	718	25900
-0260-2	1017	679	250	590 <sup>3)</sup>	200	R8	718	26750
-0300-2	1017	704	250	635 <sup>3)</sup>	250	R8	718	28300
Three-phase supply voltage 380 V, 400 V, 415 V, 440 V, <b>460 V</b> , 480 V								
-0170-5	326	192	150	162	125	R7	318	10100
-0210-5	384	240	200	192	150	R7	318	12900
-0260-5	432	289 <sup>1)</sup>	250 <sup>2)</sup>	224	150	R7	318	15300
-0270-5 **	480	316	250	240	200	R8	718	15350
-0300-5 **	568	361	300	302	250	R8	718	18050
-0320-5	588	435	350	340	250	R8	718	23250
-0400-5	588	510	400	370	300	R8	718	26650
-0440-5	840	545	450	490	400	R8	718	25950
-0490-5	840	590	500	515 <sup>3)</sup>	450	R8	718	27600
-0550-5	1017	670	550	590 <sup>3)</sup>	500	R8	718	31100
-0610-5	1017	718 <sup>4)</sup>	600	590 <sup>3)</sup>	500	R8	718	33000
Three-phase supply voltage 525 V, <b>575 V</b> or 600 V								
-0140-7	190	125	125	95	100 <sup>2)</sup>	R7	318	9600
-0170-7	263	155	150	131	125	R7	318	12150
-0210-7	294	165/195*	150/200*	147	150	R7	318	14550

ACS800-U4 size ACS800-04 size	$I_{max}$  A	Normal use		Heavy-duty use		Frame size	Air flow  ft <sup>3</sup> /min	Heat dissipation  BTU/Hr
		$I_{2N}$ A	$P_N$ hp	$I_{2hd}$ A	$P_{hd}$ hp			
-0260-7	326	175/212*	150/200*	163	150	R7	318	16400
-0320-7	433	290	300	216	200	R8	718	21050
-0400-7	548	344	350	274	250	R8	718	22750
-0440-7	656	387	400	328	350 <sup>2)</sup>	R8	718	25300
-0490-7	775	426	450	387	400	R8	718	28900
-0550-7	853	482	500	426	450	R8	718	28350
-0610-7	964	537	500	482	500	R8	718	33300

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- 1) available if ambient temperature is less than 30 °C (86 °F).  
If ambient temperature is 40 °C (104 °F),  $I_{2N}$  is 286 A.
  - 2) special 4-pole high-efficiency NEMA motor
  - 3) 50% overload is allowed for one minute every five minutes if ambient temperature is less than 30 °C (86 °F). 40% overload is allowed if ambient temperature is 40 °C (104 °F).
  - 4) available if ambient temperature is less than 30 °C (86 °F). If ambient temperature is 40 °C (104 °F),  $I_{2N}$  is 704 A.
- \* higher value available if output frequency is above 41 Hz  
\*\* ACS800-U4 types only

## Symbols

$I_{max}$  maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature.

### Normal use (10% overload capability)

$I_{2N}$  continuous rms current. 10% overload is typically allowed for one minute every 5 minutes.

$P_N$  typical motor power. The power ratings apply to most 4-pole NEMA rated motors (230 V, 460 V or 575 V).

### Heavy-duty use (50% overload capability)

$I_{2hd}$  continuous rms current. 50% overload is typically allowed for one minute every 5 minutes.

$P_{hd}$  typical motor power. The power ratings apply to most 4-pole NEMA rated motors (230 V, 460 V or 575 V).

**Note:** The ratings apply at ambient temperature of 40 °C (104 °F). At lower temperatures the ratings are higher.

## Fuses

UL class T or L fuses for branch circuit protection per NEC are listed below. Fast acting class T or faster fuses are recommended in the USA.

**Check from the fuse time-current curve that the operating time of the fuse is below 0.1 seconds.** The operating time depends on the supply network impedance and the cross-sectional area and length of the supply cable. The short-circuit current can be calculated

### *UL class T and L fuses*

ACS800-U4 type	Input current A	Fuse				
		A	V	Manufacturer	Type	UL class
Three-phase supply voltage 208 V, 220 V, <b>230 V</b> , 240 V						
-0080-2	201	250	600	Bussmann	JJS-250	T
-0100-2	239	300	600	Bussmann	JJS-300	T
-0120-2	285	400	600	Bussmann	JJS-400	T
-0140-2	391	500	600	Bussmann	JJS-500	T
-0170-2	428	600	600	Bussmann	JJS-600	T
-0210-2	506	600	600	Bussmann	JJS-600	T
-0230-2	599	800	600	Ferraz	A4BY800	L
-0260-2	677	800	600	Ferraz	A4BY800	L
-0300-2	707	900	600	Ferraz	A4BY900	L
Three-phase supply voltage 380 V, 400 V, 415 V, 440 V, <b>460 V</b> , 480 V or 500 V						
-0170-5	175	250	600	Bussmann	JJS-250	T
-0210-5	220	300	600	Bussmann	JJS-300	T
-0260-5	267	400	600	Bussmann	JJS-400	T
-0270-5	293	500	600	Bussmann	JJS-500	T
-0300-5	331	500	600	Bussmann	JJS-500	T
-0320-5	397	500	600	Bussmann	JJS-500	T
-0400-5	467	600	600	Bussmann	JJS-600	T
-0440-5	501	800	600	Ferraz	A4BY800	L
-0490-5	542	800	600	Ferraz	A4BY800	L
-0550-5	614	900	600	Ferraz	A4BY900	L
-0610-5	661	900	600	Ferraz	A4BY900	L

ACS800-U4 type	Input current A	Fuse				
		A	V	Manufacturer	Type	UL class
Three-phase supply voltage 525 V, <b>575 V</b> or 600 V						
-0140-7	117	200	600	Bussmann	JJS-200	T
-0170-7	146	200	600	Bussmann	JJS-200	T
-0210-7	184	250	600	Bussmann	JJS-250	T
-0260-7	199	300	600	Bussmann	JJS-300	T
-0320-7	273	500	600	Bussmann	JJS-500	T
-0400-7	325	500	600	Bussmann	JJS-500	T
-0440-7	370	500	600	Bussmann	JJS-500	T
-0490-7	407	600	600	Bussmann	JJS-600	T
-0550-7	463	600	600	Bussmann	JJS-600	T
-0610-7	513	700	600	Ferraz	A4BY700	L
<p><b>Note 1:</b></p> <p><b>Note 2:</b> In multicable installations, install only one fuse per phase (not one fuse per conductor).</p> <p><b>Note 3:</b> Larger fuses than the recommended ones must not be used.</p> <p><b>Note 4:</b> Fuses from other manufacturers can be used if they meet the ratings and the melting curve of the fuse does not exceed the melting curve of the fuse mentioned in the table.</p>						

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## Materials

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<b>Drive enclosure</b>	<ul style="list-style-type: none"><li>• PC/ABS 2.5 mm, colour NCS 1502-Y (RAL 9002 / PMS 420 C)</li><li>• hot-dip zinc coated steel sheet 1.5 to 2.5 mm, thickness of coating 100 micrometres, colour NCS 1502-Y</li></ul>
<b>Package</b>	Plywood and wood. Plastic covering of the package: PE-LD, bands PP or steel.
<b>Disposal</b>	<p>The main parts of the drive can be recycled to preserve natural resources and energy. Product parts and materials should be dismantled and separated.</p> <p>Generally all metals, such as steel, aluminum, copper and its alloys, and precious metals can be recycled as material. Plastics, rubber, cardboard and other packaging material can be used in energy recovery. Printed circuit boards and DC capacitors (C1-1 to C1-x) need selective treatment according to IEC 62635 guidelines. To aid recycling, plastic parts are marked with an appropriate identification code.</p> <p>Contact your local ABB distributor for further information on environmental aspects and recycling instructions for professional recyclers. End of life treatment must follow international and local regulations.</p>

## Applicable standards

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	The drive complies with the following standards.
• EN 50178:1997	<i>Electronic equipment for use in power installations</i>
• EN 61800-5-1:2003	<i>Adjustable speed electrical power drive systems. Part 5-1: Safety requirements – electrical, thermal and energy</i>
• EN/IEC 60204-1:2006	<i>Safety of machinery. Electrical equipment of machines. Part 1: General requirements. Provisions for compliance:</i> The final assembler of the machine is responsible for installing <ul style="list-style-type: none"><li>- an emergency-stop device</li><li>- a supply disconnecting device</li><li>- the ACS800-04/04M/U4 into a cabinet.</li></ul>
• EN 60529:1991 (IEC 529) + corrigendum May 1993 + A1 2000	<i>Degrees of protection provided by enclosures (IP code)</i>
• IEC 60664-1:2007	<i>Insulation coordination for equipment within low-voltage systems. Part 1: Principles, requirements and tests.</i>
• EN 61800-3:2004	<i>Adjustable speed electrical power drive systems. Part 3: EMC requirements and specific test methods</i>
• UL 508C (2002)	<i>UL Standard for Safety, Power Conversion Equipment, second edition</i>
• CSA C22.2 No. 14-05 (2005)	<i>Industrial control equipment</i>

## CE marking

A CE mark is attached to the drive to verify that the unit follows the provisions of the European Low Voltage and EMC Directives. The CE marking also verifies that the drive, in regard to its safety functions (such as Safe torque off), conforms with the Machinery Directive as a safety component.

### Compliance with the European Low Voltage Directive

The compliance with the European Low Voltage Directive has been verified according to standards EN/IEC 60204-1 and EN 50178.

### Compliance with the European EMC Directive

The EMC Directive defines the requirements for immunity and emissions of electrical equipment used within the European Union. The EMC product standard (EN 61800-3:2004) covers requirements stated for drives.

### Compliance with the European Machinery Directive

The drive is an electronic product which is covered by the European Low Voltage Directive. However, the drive can be equipped with the Safe torque off function and other safety functions for machinery which, as safety components, are in the scope of the Machinery Directive. These functions of the drive comply with European harmonized standards such as EN 61800-5-2. The declaration of conformity for each function is in the appropriate function-specific manual.

## Compliance with EN 61800-3:2004

### Definitions

EMC stands for **Electromagnetic Compatibility**. It is the ability of electrical/electronic equipment to operate without problems within an electromagnetic environment. Likewise, the equipment must not disturb or interfere with any other product or system within its locality.

*First environment* includes establishments connected to a low-voltage network which supplies buildings used for domestic purposes.

*Second environment* includes establishments connected to a network not supplying domestic premises.

*Drive of category C2*: drive of rated voltage less than 1000 V and intended to be installed and commissioned only by a professional when used in the first environment. **Note**: A professional is a person or organisation having necessary skills in installing and/or commissioning power drive systems, including their EMC aspects.

*Drive of category C3*: drive of rated voltage less than 1000 V and intended for use in the second environment and not intended for use in the first environment.

*Drive of category C4:* drive of rated voltage equal to or above 1000 V, or rated current equal to or above 400 A, or intended for use in complex systems in the second environment.

*First environment (drive of category C2)*

The drive complies with the standard with the following provisions:

1. The drive is equipped with EMC filter +E202.
2. The motor and control cables are selected as specified in the hardware manual.
3. The drive is installed according to the instructions given in the hardware manual.
4. **Maximum cable length is 100 metres.**

**WARNING!** The drive may cause radio interference if used in a residential or domestic environment. The user is required to take measures to prevent interference, in addition to the requirements for CE compliance listed above, if necessary.

**Note:** It is not allowed to install a drive equipped with EMC filter +E202 on IT (unearthed) systems. The supply network becomes connected to earth potential through the EMC filter capacitors which may cause danger or damage the unit.

*Second environment (drive of category C3)*

The drive complies with the standard with the following provisions:

1. The drive is equipped with EMC filter +E210. The filter is suitable for TN (earthed) and IT (unearthed) systems.
2. The motor and control cables are selected as specified in the hardware manual.
3. The drive is installed according to the instructions given in the hardware manual.
4. **Maximum cable length is 100 metres.**

**WARNING!** A drive of category C3 is not intended to be used on a low-voltage public network which supplies domestic premises. Radio frequency interference is expected if the drive is used on such a network.



## Optional brake chopper and resistor(s) for the ACS800-04/04M/U4

The nominal ratings for dimensioning the brake resistors are given below at an ambient temperature of 40 °C (104 °F).

ACS800-04 type	Frame size	Braking power of the chopper and the drive				Brake resistor(s)			
		5/60 s $P_{br5}$ (kW)	10/60 s $P_{br10}$ (kW)	30/60 s $P_{br30}$ (kW)	$P_{brcont}$ (kW)	Type	R (ohm)	$E_R$ (kJ)	$P_{Rcont}$ (kW)
230 V units									
-0080-2	R7	68	68	68	54	SAFUR160F380	1.78	3600	9
-0100-2	R7	83	83	83	54	SAFUR160F380	1.78	3600	9
-0120-2	R7	105	67	60	40	2xSAFUR200F500	1.35	10800	27
-0140-2	R8	135	135	135	84	2xSAFUR160F380	0.89	7200	18
-0170-2	R8	135	135	135	84	2xSAFUR160F380	0.89	7200	18
-0210-2	R8	165	165	165	98	2xSAFUR160F380	0.89	7200	18
-0230-2	R8	165	165	165	113	2xSAFUR160F380	0.89	7200	18
-0260-2	R8	223	170	125	64	4xSAFUR160F380	0.45	14400	36
-0300-2	R8	223	170	125	64	4xSAFUR160F380	0.45	14400	36
400 V units									
-0140-3	R7	135	135	100	80	SAFUR200F500	2.70	5400	13.5
-0170-3	R7	165	150	100	80	SAFUR200F500	2.70	5400	13.5
-0210-3	R7	165	150	100	80	SAFUR200F500	2.70	5400	13.5
-0260-3	R8	240	240	240	173	2XSAFUR210F575	1.70	8400	21
-0320-3	R8	300	300	300	143	2xSAFUR200F500	1.35	10800	27
-0400-3	R8	375	375	273	130	4xSAFUR125F500	1.00	14400	36
-0440-3	R8	473	355	237	120	4xSAFUR210F575	0.85	16800	42
-0490-3	R8	500	355	237	120	4xSAFUR210F575	0.85	16800	42
500 V units									
-0170-5	R7	165	132 <sup>2)</sup>	120	80	SAFUR200F500	2.70	5400	13.5
-0210-5	R7	198	132 <sup>2)</sup>	120	80	SAFUR200F500	2.70	5400	13.5
-0260-5	R7	198 <sup>1)</sup>	132 <sup>2)</sup>	120	80	SAFUR200F500	2.70	5400	13.5
-0270-5*	R8	240	240	240	240	2xSAFUR125F500	2.00	7200	18
-0300-5*	R8	280	280	280	280	2xSAFUR125F500	2.00	7200	18
-0320-5	R8	300	300	300	300	2xSAFUR125F500	2.00	7200	18
-0400-5	R8	375	375	375	234	2XSAFUR210F575	1.70	8400	21
-0440-5	R8	473	473	450	195	2xSAFUR200F500	1.35	10800	27
-0490-5	R8	480	480	470	210	2xSAFUR200F500	1.35	10800	27
-0550-5	R8	600	400 <sup>4)</sup>	300	170	4xSAFUR125F500	1.00	14400	36
-0610-5	R8	600 <sup>3)</sup>	400 <sup>4)</sup>	300	170	4xSAFUR125F500	1.00	14400	36

ACS800-04 type	Frame size	Braking power of the chopper and the drive				Brake resistor(s)			
		5/60 s	10/60 s	30/60 s		Type	R (ohm)	E <sub>R</sub> (kJ)	P <sub>Rcont</sub> (kW)
		P <sub>br5</sub> (kW)	P <sub>br10</sub> (kW)	P <sub>br30</sub> (kW)	P <sub>brcont</sub> (kW)				
690 V units									
-0140-7	R7	125 <sup>5)</sup>	110	90	75	SAFUR80F500	6.00	2400	6
-0170-7	R7	125 <sup>6)</sup>	110	90	75	SAFUR80F500	6.00	2400	6
-0210-7	R7	125 <sup>6)</sup>	110	90	75	SAFUR80F500	6.00	2400	6
-0260-7	R7	135 <sup>7)</sup>	120	100	80	SAFUR80F500	6.00	2400	6
-0320-7	R8	300	300	300	260	SAFUR200F500	2.70	5400	13.5
-0400-7	R8	375	375	375	375	SAFUR200F500	2.70	5400	13.5
-0440-7	R8	430	430	430	385	SAFUR200F500	2.70	5400	13.5
-0490-7	R8	550	400	315	225	2xSAFUR125F500	2.00	7200	18
-0550-7	R8	550	400	315	225	2xSAFUR125F500	2.00	7200	18
-0610-7	R8	550	400	315	225	2xSAFUR125F500	2.00	7200	18

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**P<sub>br5</sub>** Maximum braking power of the drive with the specified resistor(s). The drive and the chopper will withstand this braking power for 5 seconds per minute.

**P<sub>br10</sub>** The drive and the chopper will withstand this braking power for 10 seconds per minute.

**P<sub>br30</sub>** The drive and the chopper will withstand this braking power for 30 seconds per minute.

**P<sub>brcont</sub>** The drive and the chopper will withstand this continuous braking power. The braking is considered continuous if the braking time exceeds 30 s.

**Note:** Check that the braking energy transmitted to the specified resistor(s) in 400 seconds does not exceed E<sub>R</sub>.

**R** Resistance value for the resistor assembly. **Note:** This is also the minimum allowed resistance for the brake resistor.

**E<sub>R</sub>** Short energy pulse that the resistor assembly withstands every 400 seconds. This energy will heat the resistor element from 40 °C (104 °F) to the maximum allowable temperature.

**P<sub>Rcont</sub>** Continuous power (heat) dissipation of the resistor when placed correctly. Energy E<sub>R</sub> dissipates in 400 seconds.

\* ACS800-Ux types only

- 1) 240 kW possible if ambient temperature is below 33 °C (91 °F)
- 2) 160 kW possible if ambient temperature is below 33 °C (91 °F)
- 3) 630 kW possible if ambient temperature is below 33 °C (91 °F)
- 4) 450 kW possible if ambient temperature is below 33 °C (91 °F)
- 5) 135 kW possible if ambient temperature is below 33 °C (91 °F)
- 6) 148 kW possible if ambient temperature is below 33 °C (91 °F)
- 7) 160 kW possible if ambient temperature is below 33 °C (91 °F)



# Ratings and dimensions

## ACS800-U4/04

ACS800 - U4 - XXXX - 2 + XXXX

Type code	Frame size	Input A	$I_{max}$ A	Normal Duty		Heavy-duty use		Noise Level dBA	Air flow ft <sup>3</sup> /min	Heat dissipation BTU/hr
				$I_{2N}$ A	$P_N$ Hp	$I_{2HD}$ A	$P_{HD}$ Hp			
3-phase supply voltage 208, 220, 230, 240. The power ratings are valid at nominal voltage, 240Vac (50 & 60Hz)										
ACS800-U4-0002-2	R2	5.2	8.2	6.6	1.5	4.6	1	62	21	350
ACS800-U4-0003-2	R2	6.5	10.8	8.1	2	6.6	1.5	62	21	350
ACS800-U4-0004-2	R2	9.2	13.8	11	3	7.5	2	62	21	410
ACS800-U4-0006-2	R3	18	24	21	5	13	3	62	41	550
ACS800-U4-0009-2	R3	24	32	27	7.5	17	5	62	41	680
ACS800-U4-0011-2	R3	31	46	34	10	25	7.5	62	41	850
ACS800-U4-0016-2	R4	38	62	42	15	31	10	62	61	1150
ACS800-U4-0020-2	R4	49	72	54	20 <sup>(1)</sup>	42	15 <sup>(2)</sup>	62	61	1490
ACS800-U4-0025-2	R5	64	86	69	25	54	20 <sup>(2)</sup>	65	99	1790
ACS800-U4-0030-2	R5	75	112	80	30	68	25 <sup>(2)</sup>	65	99	2090
ACS800-U4-0040-2	R5	102	138	104	40 <sup>(1)</sup>	80	30 <sup>(2)</sup>	65	99	2770
ACS800-U4-0050-2	R6	126	164	132	50	104	40	65	238	3370
ACS800-U4-0060-2	R6	153	202	157	60	130	50 <sup>(2)</sup>	65	238	4050
ACS800-U4-0070-2	R6	190	282	192	75	154	60 <sup>(2)</sup>	65	238	4910
3-phase supply voltage 208, 220, 230, 240. The power ratings are valid at nominal voltage 240Vac 60Hz										
ACS800-U4-0080-2	R7	201	326	211	75	170	60	71	318	9900
ACS800-U4-0100-2	R7	239	404	248	100	202	75	71	318	11750
ACS800-U4-0120-2	R7	285	432	290	100	240	75	71	318	13450
ACS800-U4-0140-2	R8	391	588	396	150	316	125	72	718	18100
ACS800-U4-0170-2	R8	428	588	440	150	340	125	72	718	20800
ACS800-U4-0210-2	R8	506	588	516	200	370	150	72	718	22750
ACS800-U4-0230-2	R8	599	840	598	200	480	200	72	718	25900
ACS800-U4-0260-2	R8	677	1017	679	250	590 <sup>(2)</sup>	200	72	718	26750
ACS800-U4-0300-2	R8	707	1017	704	250	635 <sup>(2)</sup>	250	72	718	28300

**NOTES:**

- <sup>(1)</sup> Overload may be limited to 5% at higher motor speeds (speed >90% motor base speed) by the internal power limit of the drive
- <sup>(2)</sup> Overload may be limited to 40% at higher motor speeds (speed >90% motor base speed) by the internal power limit of the drive
- <sup>(3)</sup> Rating not applicable for all motors. Available for some 4-pole 460V high efficiency NEMA motors.

$I_{max}$  current available for 10 seconds at start.  
 $I_{2N}$  continuous base current at 40°C (104°F). Overload cycle 110%  
 $I_{2N}$  for 1 minute / 5 minutes allowed.  
 $I_{2HD}$  continuous base current at 40°C (104°F). Overload cycle 150%  
 $I_{2HD}$  for 1 minute / 5 minutes allowed.

- Current ratings do not change with different supply voltages.
- Horsepower ratings are based on NEMA motor ratings for typical 4-pole motors (1800 rpm). Check motor nameplate current for compatibility.

### Enclosure

Degree of Protection:  
 IP20 (R2 - R6), IP00 (R7 - R8)  
 Paint color:  
 NCS 1502-Y (RAL 90021/PMS 420C)

### Dimensions:

Frame	Imperial Units (in)&(lb)			
	Height	Width	Depth	Weight
R2	14.6	6.5	7.8	20
R3	16.5	6.8	9.4	31
R4	19.3	9.4	10.1	57
R5	23.7	10.4	10.6	75
R6	27.6	11.8	15.7	148
R7	44.1	13.2	20.3	220
R8	61.6	16.4	22.4	441

# Ratings and dimensions

## ACS800-U4/04



ACS800 - U4 - XXXX - 5 + XXXX

Type code	Frame size	Input A	I <sub>max</sub> A	Normal Duty		Heavy-duty use		Noise Level dBA	Air flow ft <sup>3</sup> /min	Heat Dissipation BTU/hr
				I <sub>2N</sub> A	P <sub>N</sub> Hp	I <sub>2HD</sub> A	P <sub>HD</sub> Hp			
3-phase supply voltage 380, 400, 415, 460, 480, 500. The power ratings are valid at nominal voltage, 480Vac 60Hz										
ACS800-U4-0004-5	R2	4.1	6.5	4.9	3	3.4	2	62	21	410
ACS800-U4-0005-5	R2	5.4	8.2	6.2	3	4.2	2	62	21	480
ACS800-U4-0006-5	R2	6.9	10.8	8.1	5	5.6	3	62	21	550
ACS800-U4-0009-5	R2	9.8	13.8	11	7.5	8.1	5	62	21	690
ACS800-U4-0011-5	R2	13	17.6	14	10	11	7.5	62	21	860
ACS800-U4-0016-5	R3	18	24	21	15	15	10	62	41	1150
ACS800-U4-0020-5	R3	24	32	27	20	21	15	62	41	1490
ACS800-U4-0025-5	R3	31	46	34	25	27	20	62	41	1790
ACS800-U4-0030-5	R4	40	62	42	30	34	25	62	61	2090
ACS800-U4-0040-5	R4	52	72	52	40	37	30 <sup>(3)</sup>	62	61	2770
ACS800-U4-0050-5	R5	63	86	65	50	52	40	65	99	3370
ACS800-U4-0060-5	R5	77	112	79	60	65	50	65	99	4050
ACS800-U4-0070-5	R5	94	138	96	75	77	60	65	99	4910
ACS800-U4-0100-5	R6	121	164	124	100	96	75	65	238	6610
ACS800-U4-0120-5	R6	155	202	157	125	124	100	65	238	7890
ACS800-U4-0140-5	R6	179	282	180	150	156	125	65	238	9600
ACS800-U4-0205-5	R6	252	326	254	200	215	150	65	238	13670
3-phase supply voltage 380, 400, 415, 460, 480, 500. The power ratings are valid at nominal voltage, 480Vac 60Hz										
ACS800-U4-0170-5	R7	175	326	192	150	162	125	71	318	10100
ACS800-U4-0210-5	R7	220	384	240	200	192	150	71	318	12900
ACS800-U4-0260-5	R7	267	432	286	200 <sup>(1)</sup>	224	150	71	318	15300
ACS800-U4-0270-5	R8	293	480	316	250	240	200	72	718	15350
ACS800-U4-0300-5	R8	331	568	361	300	302	250	72	718	18050
ACS800-U4-0320-5	R8	397	588	435	350	340	250	72	718	23250
ACS800-U4-0400-5	R8	467	588	510	400	370	300	72	718	26650
ACS800-U4-0440-5	R8	501	840	545	450	490	400	72	718	25950
ACS800-U4-0490-5	R8	542	840	590	500	515 <sup>(2)</sup>	450	72	718	27600
ACS800-U4-0550-5	R8	614	1017	670	550	590 <sup>(2)</sup>	500	72	718	3100
ACS800-U4-0610-5	R8	661	1017	704	600 <sup>(1)</sup>	590 <sup>(2)</sup>	500	72	718	33000

NOTES:

- <sup>(1)</sup> Overload may be limited to 5% at higher motor speeds (speed >90% motor base speed) by the internal power limit of the drive
- <sup>(2)</sup> Overload may be limited to 40% at higher motor speeds (speed >90% motor base speed) by the internal power limit of the drive
- <sup>(3)</sup> Rating not applicable for all motors. Available for some 4-pole 460V high efficiency NEMA motors.

I<sub>max</sub> current available for 10 seconds at start.  
 I<sub>2N</sub> continuous base current at 40°C (104°F). Overload cycle 110%  
 I<sub>2N</sub> for 1 minute / 5 minutes allowed.  
 I<sub>2nd</sub> continuous base current at 40°C (104°F). Overload cycle 150%  
 I<sub>2nd</sub> for 1 minute / 5 minutes allowed.

- Current ratings do not change with different supply voltages.
- Horsepower ratings are based on NEMA motor ratings for typical 4-pole motors (1800 rpm). Check motor nameplate current for compatibility.

### Enclosure

Degree of Protection:  
 IP20 (R2 - R6), IP00 (R7 - R8)  
 Paint color:  
 NCS 1502-Y (RAL 90021/PMS 420C)

### Dimensions:

Frame	Imperial Units (in)&(lb)			
	Height	Width	Depth	Weight
R2	14.6	6.5	7.8	20
R3	16.5	6.8	9.4	31
R4	19.3	9.4	10.1	57
R5	23.7	10.4	10.6	75
R6	27.6	11.8	15.7	148
R7	44.1	13.2	20.3	220
R8	61.6	16.4	22.4	441

# Ratings and dimensions

## ACS800-U4/04



ACS800 - U4 - XXXX - 7 + XXXX

Type code	Frame size	Input A	I <sub>max</sub> A	Normal Duty		Heavy-duty use		Noise Level dBA	Air flow ft <sup>3</sup> /min	Heat Dissipation BTU/hr
				I <sub>2N</sub> A	P <sub>N</sub> Hp	I <sub>2HD</sub> A	P <sub>HD</sub> Hp			
3-phase supply voltage 525, 550, 575, 600, 690. The power ratings are valid at nominal voltage, 575Vac 60Hz										
ACS800-04-0011-7	R4	10	14	11.5	10	8.5	5	62	61	1050
ACS800-04-0016-7	R4	13	19	15	10	11	10	62	61	1200
ACS800-04-0020-7	R4	19	28	20	15	15	10	62	61	1550
ACS800-04-0025-7	R4	21	38	23	20	19	15	62	61	1850
ACS800-04-0030-7	R4	29	44	30	25	22	20	62	61	2100
ACS800-04-0040-7	R4	32	54	34	30	27	25	62	61	2400
ACS800-04-0050-7	R5	45	68	46	40	34	30	65	99	2900
ACS800-04-0060-7	R5	51	84	52	50	42	40	65	99	3450
ACS800-04-0070-7	R6	70	104	73	60	54	50	65	238	4200
ACS800-04-0100-7	R6	82	124	86	75	62	60	65	238	5650
ACS800-04-0120-7	R6	103	172	108	100	86	75	65	238	6700
ACS800-04-0145-7	R6	121	245	125	125	99	100	65	238	9084
ACS800-04-0175-7	R6	150	245	155	150	131	125	65	238	11851
ACS800-04-0205-7	R6	192	245	192	200	147	150	65	238	14275
3-phase supply voltage 525, 550, 575, 600, 690. The power ratings are valid at nominal voltage 575Vac 60Hz										
ACS800-04-0140-7	R7	117	190	125	125	95	100 <sup>(1)</sup>	71	318	9600
ACS800-04-0170-7	R7	146	263	155	150	131	125	71	318	12150
ACS800-04-0210-7	R7	184	294	165/195 <sup>(3)</sup>	150/200 <sup>(3)</sup>	147	150	71	318	14550
ACS800-04-0260-7	R7	199	326	175/212 <sup>(3)</sup>	150/200 <sup>(3)</sup>	163	150	71	318	16400
ACS800-04-0320-7	R8	273	433	290	300	216	200	72	718	21050
ACS800-04-0400-7	R8	325	548	344	350	274	250	72	718	22750
ACS800-04-0440-7	R8	370	656	387	400	328	350 <sup>(1)</sup>	72	718	25300
ACS800-04-0490-7	R8	407	775	426	450	387	400	72	718	28900
ACS800-04-0550-7	R8	463	853	482	500	426	450	72	718	28350
ACS800-04-0610-7	R8	513	964	537	550	482	500	72	718	33300

**NOTES:**

- <sup>(1)</sup> Overload may be limited to 5% at higher motor speeds (speed >90% motor base speed) by the internal power limit of the drive
- <sup>(2)</sup> Overload may be limited to 40% at higher motor speeds (speed >90% motor base speed) by the internal power limit of the drive
- <sup>(3)</sup> Rating not applicable for all motors. Available for some 4-pole 460V high efficiency NEMA motors.

I<sub>max</sub> current available for 10 seconds at start.  
 I<sub>2N</sub> continuous base current at 40°C (104°F). Overload cycle 110% for 1 minute / 5 minutes allowed.  
 I<sub>2HD</sub> continuous base current at 40°C (104°F). Overload cycle 150% for 1 minute / 5 minutes allowed.

- Current ratings do not change with different supply voltages.
- Horsepower ratings are based on NEMA motor ratings for typical 4-pole motors (1800 rpm). Check motor nameplate current for compatibility.

**Enclosure**

Degree of Protection:  
 IP20 (R4 - R6), IP00 (R7 - R8)  
 Paint color:  
 NCS 1502-Y (RAL 90021/PMS 420C)

**Dimensions:**

Frame	Imperial Units (in)&(lb)			
	Height	Width	Depth	Weight
R4	19.3	9.4	10.1	57
R5	23.7	10.4	10.6	75
R6	27.6	11.8	15.7	148
R7	44.1	13.2	20.3	220
R8	61.6	16.4	22.4	441

По вопросам продаж и поддержки обращайтесь:

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