

ABB industrial drives

ACS800, multidrives, 1.5 to 5600 kW

Technical catalogue



Type code structure

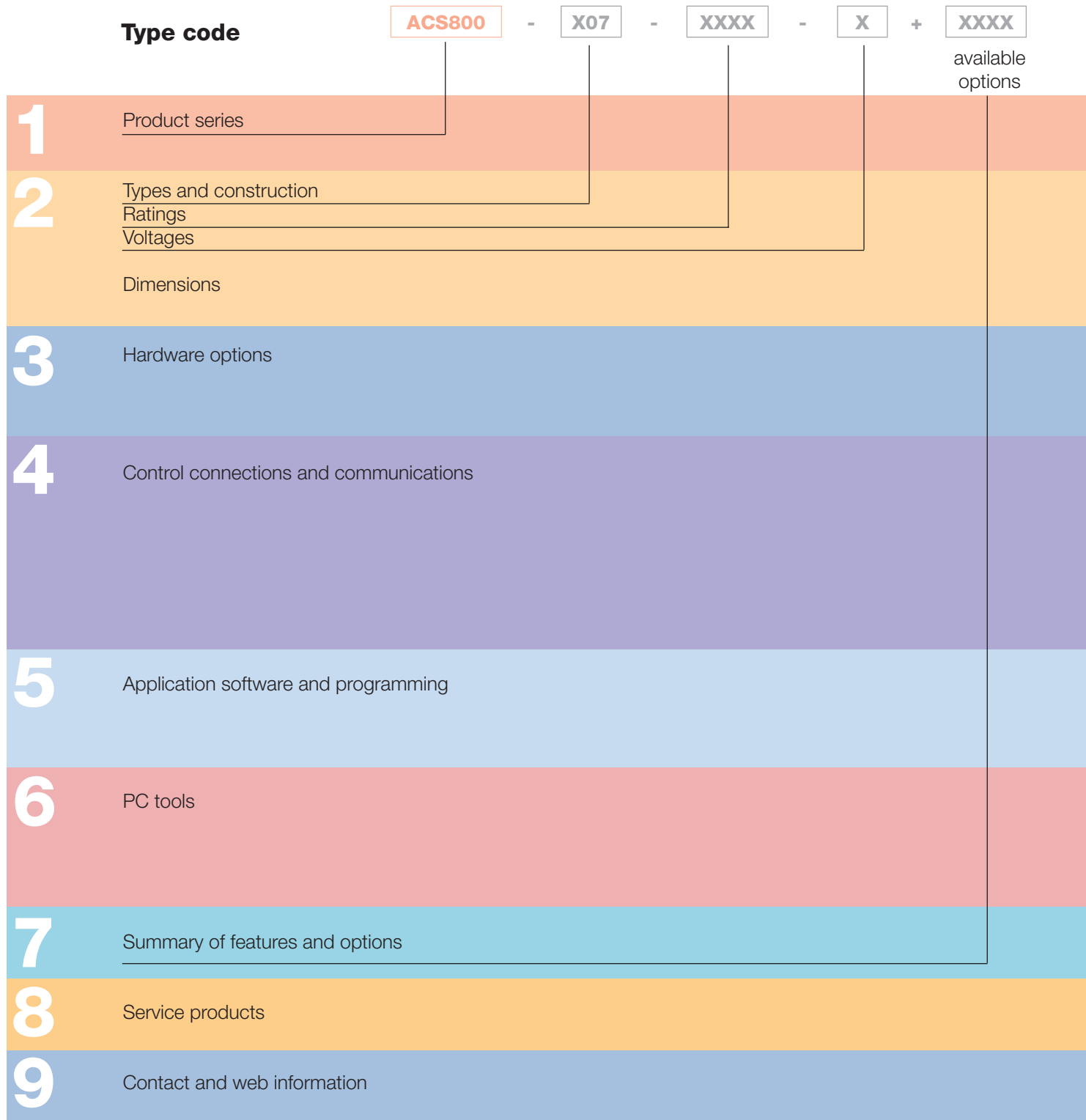




ABB industrial drives, ACS800, multidrives

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ACS800 - X07 - XXXX - X + XXXX

ABB industrial drives

ABB industrial drives are designed for industrial applications, and especially for applications in process industries such as the pulp & paper, metals, mining, cement, power, chemical, and oil & gas industries. ABB industrial drives are highly flexible AC drives that can be configured to meet the precise needs of these applications, and hence order-based configuration is an integral part of the offering. These drives cover a wide range of powers and voltages, including voltages up to 690 V. ABB industrial drives come with a wide range of inbuilt options. A key feature of these drives is programmability, which makes adaptation to different applications easy.

Industrial design

ABB industrial drives are designed with current ratings to be used in industrial environments for applications requiring high overloadability. The heart of the drive is DTC, Direct Torque Control, that provides high performance and significant benefits: e.g. accurate static and dynamic speed and torque control, high starting torque and long motor cables. Inbuilt drive options make the installation work fast and easy.

One of the most significant design criteria of ABB industrial drives has been the long lifetime. Wearing parts such as fans and capacitors have been selected accordingly. Together with the extensive protection features this results in excellent reliability in the demanding industrial market.

Industrial^{IT} enabled

ABB industrial drives are Industrial^{IT} enabled. This guarantees the user that ABB industrial drives can be easily integrated into ABB Industrial IT systems.

Type code

This is the unique reference number that clearly identifies your drive by construction, power rating voltage and selected options. Using the type code you can specify your drives from the wide range of options available, customer specific options are added to the type code using the corresponding + code.



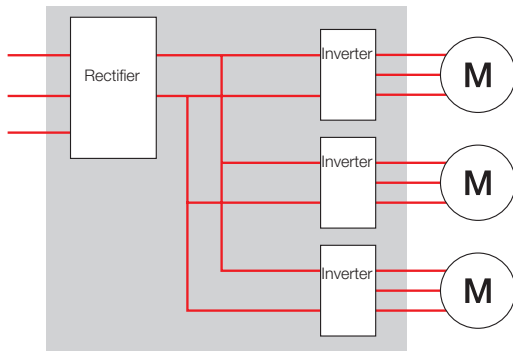
Other products:

Please also see the separate technical catalogues ACS800, single drives code, 3AFE68375126 EN. ACS800, drive modules code, 3AFE68404592 EN.



Multidrives

The multidrive principle is based on a standard DC bus arrangement enabling single power entry and common braking resources for several drives. There are several possibilities on the supply side starting from a simple diode supply unit up to highly sophisticated active IGBT supply units.



The multidrive construction simplifies the total installation and provides many advantages such as:

- savings in cabling, installation and maintenance costs
- space savings
- reduced component count and increased reliability
- reduced line currents and simpler braking arrangements
- energy circulation over the common DC busbar, which can be used for motor-to-motor braking without the need for a braking chopper or regenerative supply unit.
- The common supply of the multidrive enables the implementation of overall safety and control functions.

Where are multidrives used

Generally speaking, multidrives can be used wherever several drives form part of a single process. The common supply of the multidrive enables the implementation of overall safety and control functions. The shafts of the individual drive motors can be more or less tightly coupled. In tight coupling, for example in a paper machine, the individual ABB drive modules provide fast communication of torque and speed signals between the drives, for controlling the tension in the paper web. But also in those cases where the shafts of the individual drive motors are not tightly coupled, for example in sugar centrifuges, each drive module can be programmed with a speed profile in order to minimize overall energy consumption. These two examples merely demonstrate the range of applications where multidrives offer substantial benefits over other types of drive constructions.

Multidrive promises

- flexibility
- compact design
- a wide range of options
- adaptive programming
- reduced installation costs



Overview of the construction

A multidrive is made up of several different units (see figure below). These sections are called multidrive units and the most important units are:

- drive units
- diode supply units
- IGBT supply units
- thyristor supply units
- dynamic braking units
- control units (optional)

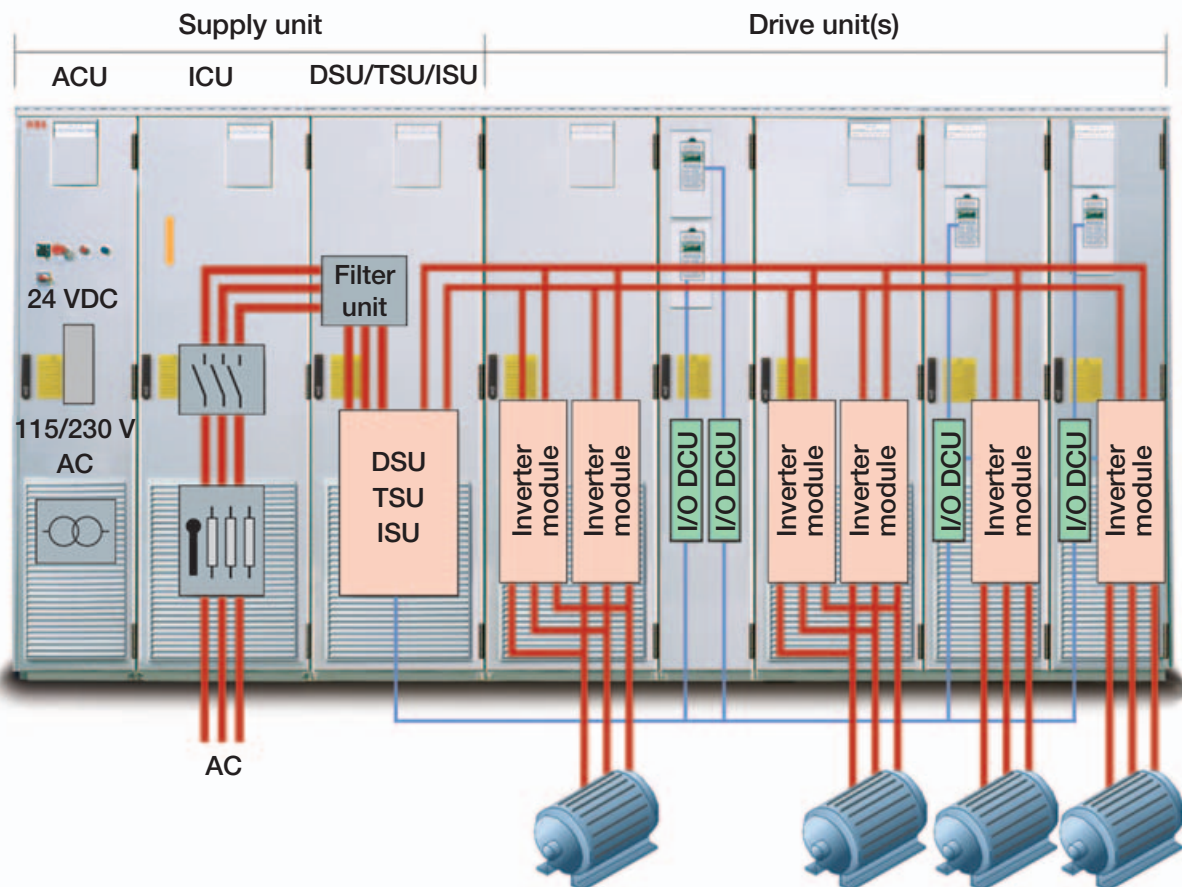
Drive units

Inverters have inbuilt capacitors for smoothing the voltage of the DC busbars. The electrical connection to the common DC busbar is fuse protected. However, an optional fuse switch with a capacitor charging device can be selected to disconnect the whole drive unit.

Each inverter has a drive control unit (DCU) which contains the RMIO board and optional I/O modules. Several different I/O extension modules for different functions such as control, monitoring and measurement purposes are available. A separate pulse encoder interface module is also possible. Other optional features include the prevention of unexpected start-up for the inverters to provide a safe interlock for the system.

Diode supply unit (DSU)

A diode supply unit is used in non-regenerative drive systems to convert three-phase AC voltage to DC voltage. A 12-pulse bridge configuration can be implemented with the unit supplied by a three-winding transformer with a thirty degree phase shift between secondary windings.





IGBT supply unit (ISU)

An IGBT supply unit is used in regenerative drive systems to convert three-phase AC voltage to DC voltage. In power control it gives the same firm but gentle performance as DTC gives in motor control.

The main circuit consists of a main switch, a filter and a converter. The converter is hardware compatible with drive units. In the passive mode the converter operates as the rectifier. In the active mode the IGBTs are controlled to keep the DC voltage constant and the line current sinusoidal. The control also provides a near unity power factor. The control performance is excellent due to the ultra-fast control technology, the same as in DTC.

A fully regenerative IGBT supply unit with power factor 1 requires no power compensation. The unit can also boost motor voltage when line voltage is low. Harmonic content remains extremely low due to DTC control and LCL filtering.

Thyristor supply unit (TSU)

A thyristor supply unit is used in regenerative drive systems to convert three-phase AC voltage to DC voltage. The thyristor supply unit contains two 6-pulse thyristor bridges in antiparallel connection. It has the ability to regenerate back to the mains, providing considerable energy savings with applications having excessive braking powers. A 12-pulse bridge configuration can be implemented with two thyristor supply units supplied by a three-winding transformer. This configuration reduces harmonics in the supply network.

Dynamic braking unit (DBU)

In resistor braking whenever the voltage in the intermediate circuit of a frequency converter exceeds a certain limit, a braking chopper connects the circuit to a braking resistor.

Standard braking resistors are separately available in their own cabinets. Non-standard resistors can be used providing that the specified resistance value is not decreased and that the heat dissipation capacity of the resistor is sufficient for the drive application.

AC800M control unit (optional)

The multidrive concept also includes the control unit for the AC800M and S800 I/O. The control unit is equipped with communication interfaces, power supplies and the front-devices necessary for the automation equipment.

Multidrive main features



Features	Benefits	Notes
Compact and complete		
Integration and compact size	Small size Options inside the drive	The inverter modules are dramatically smaller. The average length of the multidrive line-up has now been cut to half the previous size.
Construction simpler	Modular and redundant Fewer spare parts Innovative design	Power modules are available in 7 different sizes (R2i-R5i, R7i, R8i) starting from 3 kVA for motor inverters and 70 kVA for line supply. All the powers from about 210 to 6900 kVA are different configurations of R8i units, single or in parallel. Only four types of diode rectifier units cover the power range of 200 to 4540 kVA. The modules have a plug-in connector, meaning very easy assembling. The modules are also equipped with wheels, which enables fast maintenance. The modules can be freely connected in parallel for higher output current. This means a limited number of different module sizes and fewer spare parts.
Wide range of options available	Standard solutions available from ABB that meets the customer needs.	Custom made solutions are available for the whole product range.
Common ABB drive technology	Industrial drive platform	Common control platform Software Same spare parts Less training
User interface		
User-friendly customer interface	Easy and fast commissioning and operation.	Easy to use PC tools available for commissioning, maintenance, monitoring and programming. Control panel has clear, alphanumeric display.
Versatile connections and communications	Standard I/O covers most requirements. Connectable to commonly used fieldbuses.	Extensive standard and optional I/O. I/O fulfils PELV (EN 50178).
Extensive programmability	Flexibility. Possible to replace relays or even PLC in some applications.	Two levels of programmability: 1. Parameter programming (standard) 2. Adaptive programming (free block programming) <ul style="list-style-type: none"> - Standard feature - More blocks available as options - All I/Os are programmable

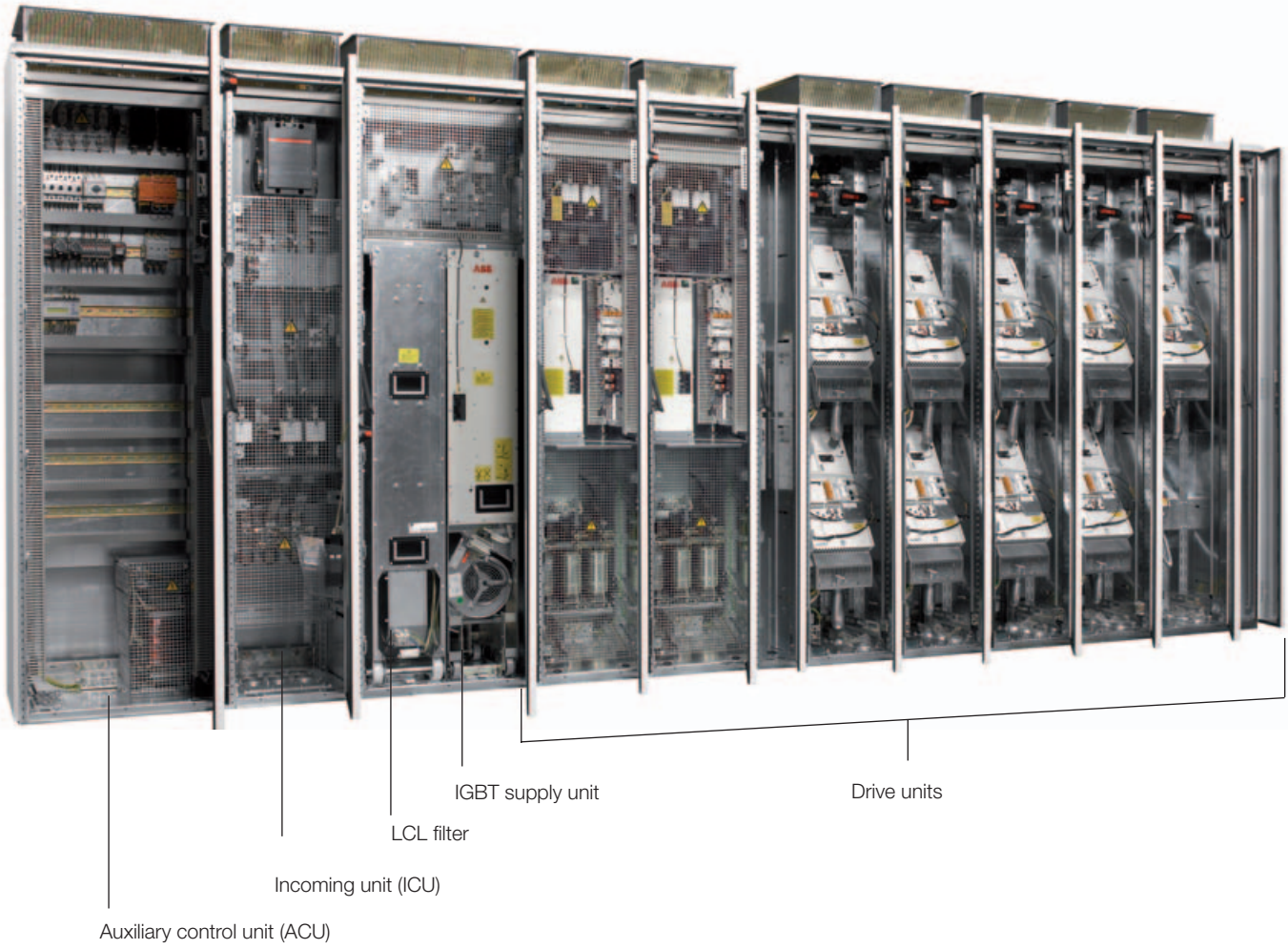
Multidrive main features



Features	Benefits	Notes
Industrial design		
Wide power and voltage range	One product series suits everywhere meaning less training and fewer spare parts, and a standardised interface to drives.	
Wide range of robust enclosures available	Suitable solutions available for different environments.	IP21 - IP54, except braking resistor cabinet IP21
Robust main circuit design	Suitable for heavy industrial use. Reliable.	Components dimensioned for heavy duty and long lifetime. Advanced thermal model allows high overloadability.
Extensive protections	Enhanced reliability, fewer process interruptions. Possibility to also protect motors and process.	Several adjustable limits to protect other equipment also.
Galvanic isolation of I/O	Safe and reliable operation without separate isolators and relays.	Isolated input signals and relay outputs as standard.
All terminals designed for industrial use	Adequate size even for large aluminium cables. No need for special tools in I/O cabling.	
Worldwide approvals: CE, UL, cUL, CSA, C-Tick, GOST R	Safe products that can be used everywhere in the world.	
Right performance for every application		
DTC, accurate dynamic and static speed and torque control	Excellent process control even without pulse encoder - improved product quality, productivity, reliability and lower investment cost.	
DTC - allows high overload-ability and gives high starting torque	Reliable, smooth start without overdimensioning the drive.	
DTC, fast control	No unnecessary trips and process interruptions.	Fast reaction to load or voltage variations prevents tripping. Rides through power interruptions by using kinetic energy of the load. Optimal flux in the motor reduces losses.
DTC, flux optimisation and sophisticated motor model	Excellent motor and drive efficiency - cost savings.	
DTC, mechanics friendly	Less stress for mechanics improves reliability.	No shock torques. No torque ripple - minimised risk for torsional vibration. Active oscillation damping. Applies for ACS800-207.
DTC, line supply control	High performance and robust control in active supply unit.	
Made in ABB		
Global market leader in AC drives. Long experience.	Well proven, safe and reliable solutions. Application know-how.	
World wide service and support network	Professional support is available around the world.	



ACS800, multidrives



Technical specification



ACS800 - X07 - XXXX - X + XXXX

Mains connection

Voltage and power range	3-phase, $U_{3IN} = 380$ to 415 V, $\pm 10\%$ 3-phase, $U_{5IN} = 380$ to 500 V, $\pm 10\%$ 3-phase, $U_{7IN} = 525$ to 690 V, $\pm 10\%$ (600 V UL, CSA)
Frequency	48 to 63 Hz
Power factor	$\cos\phi_1 = 0.98$ (fundamental) $\cos\phi = 0.93..0.95$ (total)
Power factor ISU	$\cos\phi_1 = 1$ (fundamental) $\cos\phi_1 = 0.99$ (total)
Efficiency (at nominal power)	98 % 97 % with IGBT supply unit

Motor connection

Voltage for >500 V units	3-phase output voltage $0..U_{3IN}/U_{5IN}/U_{7IN}$ please see "Filter selection table for ACS800" under the du/dt filters on page 21
Frequency	$0..\pm 300$ Hz, also with du/dt filters
Field weakening point	8...300 Hz
Motor control software	ABB's Direct Torque Control (DTC)
Torque control	Torque step rise time: Open loop <5 ms with nominal torque Closed loop <5 ms with nominal torque Non-linearity: Open loop $\pm 4\%$ with nominal torque Closed loop $\pm 1\%$ with nominal torque
Speed control	Static accuracy: Open loop 10% of motor slip Closed loop 0.01% of nominal speed Dynamic accuracy: Open loop 0.3...0.4%sec. with 100% torque step Closed loop 0.1...0.2%sec. with 100% torque step

Environmental limits

Ambient temperature	Transport -40...+70°C Storage -40...+70°C Operation 0...+50°C, no frost allowed 40...50°C at reduced output current (1%/1°C)
Cooling method	Dry clean air
Altitude	0...1000 m without derating 1000...4000 m with derating ~ (1% / 100 m) (690 V units 1000...2000 m with derating)
Relative humidity	5 to 95%, no condensation allowed
Degree of protection	IP21 As option IP22, IP42 and IP54
Paint colour	cabinet RAL 7035, modules: NCS 1502-Y, RAL 90021, PMS 420 C.
Contamination levels	No conductive dust allowed
Storage	IEC60721-3-1, Class 1C2 (chemical gases), Class 1S2 (solid particles)
Transportation	IEC60721-3-2, Class 2C2 (chemical gases), Class 2S2 (solid particles)
Operation	IEC60721-3-3, Class 3C2 (chemical gases), Class 3S2 (solid particles without airinlet filters)
Vibration	IEC60068-2-6, 10...58 Hz 0.075 mm displacement amplitude 58...150 Hz 10m/s ² (1 g)
Vibration Marine Classification	3...13.2 Hz 1.0 mm 13.2...100 Hz 7m/s ² (0.7g) displacement amplitude
C = chemically active substances S = mechanically active substances	

Product compliance

CE
Low Voltage Directive 73/23/EEC with amendment 93/68/EEC
Machinery Directive 98/37/EC
EMC Directive 89/336/EEC with amendment 93/68/EEC
Quality assurance system ISO 9001 and
Environmental system ISO 14001
UL, cUL 508A and 508C and CSA C22.2 NO.14-95, for some types available later.
C-Tick
GOST R

EMC according to EN 61800-3

2nd environment unrestricted distribution category C3 as standard
1st environment restricted distribution category C2 as option up to 1000 A input current



Multidrive ratings, types and voltages

Drive unit, $U_N = 400\text{ V}$

ACS800 - 107 - XXXX - 3 + XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Heat dissipation kW	Type code	Frame size
$I_{\text{cont. max}}$ A (AC)	I_{max} A	$P_{\text{cont. max}}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW			
$U_N = 400\text{ V}$ (Range 380-415 V)									
5.1	6.5	1.5	4.7	1.5	3.4	1.1	0.1	ACS800-107-0003-3	R2i
6.5	8.2	2.2	5.9	2.2	4.3	1.5	0.1	ACS800-107-0004-3	R2i
8.5	10.8	3	7.7	3	5.7	2.2	0.1	ACS800-107-0005-3	R2i
10.9	13.8	4	10.2	4	7.5	3	0.1	ACS800-107-0006-3	R2i
13.9	17.6	5.5	12.7	5.5	9.3	4	0.2	ACS800-107-0009-3	R2i
19	24	7.5	18	7.5	14	5.5	0.3	ACS800-107-0011-3	R3i
25	32	11	24	11	19	7.5	0.3	ACS800-107-0016-3	R3i
34	46	15	31	15	23	11	0.4	ACS800-107-0020-3	R3i
44	62	22	41	18.5	32	15	0.5	ACS800-107-0025-3	R4i
55	72	30	50	22	37	18.5	0.6	ACS800-107-0030-3	R4i
72	86	37	69	30	49	22	0.8	ACS800-107-0040-3	R5i
86	112	45	80	37	60	30	1	ACS800-107-0050-3	R5i
103	138	55	94	45	69	37	1.2	ACS800-107-0060-3	R5i
147	220	75	141	75	110	55	1.4	ACS800-107-0105-3	R7i
178	252	90	171	90	133	55	1.7	ACS800-107-0125-3	R7i
208	312	110	200	110	151	75	1.9	ACS800-107-0145-3	R7i
250	374	132	240	132	187	90	2.1	ACS800-107-0175-3	R7i
160	292	400	160	280	110	218	2.7	ACS800-107-0210-3	R8i
370	506	200	355	200	277	132	3.7	ACS800-107-0260-3	R8i
469	642	250	450	250	351	200	4.9	ACS800-107-0320-3	R8i
565	773	315	542	315	423	250	6.1	ACS800-107-0390-3	R8i
741	1014	400	711	400	554	315	8	ACS800-107-0510-3	R8i
1111	1521	630	1067	630	831	450	12	ACS800-107-0770-3	2xR8i
1452	1988	800	1394	800	1086	630	15	ACS800-107-1030-3	2xR8i
2156	2951	1200	2070	1200	1613	900	23	ACS800-107-1540-3	3xR8i
2845	3894	1600	2731	1600	2128	1120	30	ACS800-107-2050-3	4xR8i
3537	4842	2000	3396	2000	2646	1400	37	ACS800-107-2570-3	5xR8i
4223	5780	2400	4054	2400	3159	1600	44	ACS800-107-3080-3	6xR8i

Standard options:

- Cable top exit
- DC switch with capacitor charging circuits
- Ground fault protection with current transformer(s)
- Output du/dt filter, standard for parallel connected inverters
- Common motor connection terminals with parallel connected inverters

Dimensions

Frame size	Height mm	Width mm	Width with top exit mm	Depth mm	Weight kg	Noise level dB(A)	Noise level dB(A) ⁵⁾	Air flow m ³ /h
R2i	2130 ¹⁾	400 ²⁾	-	644	180	62	-	35
R3i	2130 ¹⁾	400 ²⁾	-	644	180	62	-	69
R4i	2130 ¹⁾	400 ²⁾	-	644	180	62	-	103
R5i	2130 ¹⁾	400 ²⁾	-	644	180	65	-	168
R7i	2130 ¹⁾	400	700 ⁴⁾	644 ⁶⁾	200	72	-	800
R8i	2130 ¹⁾	400 ³⁾	700 ³⁾⁴⁾	644 ⁶⁾	320	72	60	1280
2xR8i	2130 ¹⁾	600 ³⁾	900 ³⁾⁴⁾	644 ⁶⁾	510	74	62	2560
3xR8i	2130 ¹⁾	800 ³⁾	1200 ³⁾⁴⁾	644 ⁶⁾	660	76	64	3840
4xR8i	2130 ¹⁾	1200 ³⁾	1600 ³⁾⁴⁾	644 ⁶⁾	1020	76	64	5120
5xR8i	2130 ¹⁾	1400 ³⁾	1800 ³⁾⁴⁾	644 ⁶⁾	1170	77	65	6400
6xR8i	2130 ¹⁾	1600 ³⁾	2200 ³⁾⁴⁾	644 ⁶⁾	1320	78	66	7680

- 1) Cabinet height is 2315 mm for IP54 classification and for IPXXR 2051 mm. An additional 10 mm is required for marine supports.
- 2) 1-3 x R2i, 1-3 x R3i, 1-2 x R4i, 1-2 x R5i.
- 3) 300 mm is required for Drive Control Unit (DCU). One DCU can be used for two drive units.
- 4) Delivered with additional cabinet(s), when top exit or common motor output connection is required.
- 5) Average noise level with controlled cooling fan.
- 6) Alternative for top exit with additional cabinet: Backpack, depth is an additional 120 mm.

Nominal Ratings:

$I_{\text{cont. max}}$: rated current available continuously without overloadability at 40°C.

I_{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 in no-overload use.

Light-overload use

I_N : continuous current allowing 110% I_N for 1min/ 5 min at 40°C.

P_N : typical motor power in light-overload use.

Heavy-duty use

I_{hd} : continuous current allowing 150% I_{hd} for 1min/ 5 min at 40°C.

P_{hd} : typical motor power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

The ratings apply in 40°C ambient temperature. In lower temperatures the ratings are higher (except I_{max}).

Dimensioning has to be checked with DriveSize.

The rated current of the ACS800 must be higher than or equal to the rated motor current to achieve the rated motor power given in the table.

Multidrive ratings, types and voltages

Supply unit, $U_N = 400\text{ V}$



ACS800 - X07 - XXXX - 3 + XXXX

Nominal ratings				No-overload use	Light-overload use		Heavy-duty use		Heat dissipation kW	Type code	Frame size
$I_{\text{cont. max}}$ A (AC)	$I_{\text{cont. max}}$ A (DC)	I_{max} A (DC)	S_N kVA	$P_{\text{cont. max}}$ kW (DC)	I_N A (DC)	P_N kW (DC)	I_{hd} A (DC)	P_{hd} kW (DC)			
$U_N = 400\text{ V}$ (Range 380-415 V)											
IGBT supply unit (ISU)											
182	221	330	131	130	212	124	165	97	3.8	ACS800-207-0135-3	R7i
224	272	406	161	159	261	153	203	119	4.2	ACS800-207-0155-3	R7i
284	344	471	204	202	331	194	258	151	5.9	ACS800-207-0200-3	R8i
378	458	627	272	269	440	258	343	201	8	ACS800-207-0260-3	R8i
473	573	784	340	336	550	323	429	252	10	ACS800-207-0330-3	R8i
630	764	1046	453	448	733	430	571	335	15	ACS800-207-0440-3	R8i
945	1146	1568	679	672	1100	646	857	503	21	ACS800-207-0660-3	2xR8i
1235	1497	2049	888	879	1437	844	1120	657	28	ACS800-207-0860-3	2xR8i
1833	2223	3042	1318	1304	2134	1252	1662	976	42	ACS800-207-1270-3	3xR8i
2419	2933	4015	1739	1722	2816	1653	2194	1288	55	ACS800-207-1680-3	4xR8i
3591	4354	5960	2581	2555	4180	2453	3257	1911	81	ACS800-207-2490-3	6xR8i
6-pulse diode (DSU)											
286	350	462	198	183	335	175	280	147	1.5	ACS800-307-0200-3	D3
408	500	700	283	262	480	251	400	210	2.4	ACS800-307-0280-3	D3
571	700	924	396	367	670	351	560	293	3.8	ACS800-307-0400-3	D4
816	1000	1400	566	524	960	503	800	419	5	ACS800-307-0570-3	D4
1143	1400	1848	792	733	1340	702	1120	587	7.6	ACS800-307-0790-3	2xD4
1518	1860	2604	1052	974	1790	938	1490	780	10	ACS800-307-1050-3	2xD4
2278	2790	3906	1578	1461	2685	1406	2230	1168	15	ACS800-307-1580-3	3xD4
3037	3720	5208	2104	1949	3580	1875	2980	1561	20	ACS800-307-2100-3	4xD4
3796	4650	6510	2630	2436	4475	2344	3720	1949	25	ACS800-307-2630-3	5xD4
6-pulse regenerative (TSU)											
981	1202	1947	680	639	1136	604	880	468	6.3	ACS800-407-0680-3	B4
1617	1980	3208	1120	1053	1872	995	1450	771	10	ACS800-407-1120-3	B4
2449	3000	4860	1697	1595	2838	1509	2244	1193	17	ACS800-407-1700-3	B5
2858	3500	5670	1980	1861	3311	1760	2618	1392	21	ACS800-407-2100-3	B5
12-pulse diode (DSU)											
571	700	924	396	367	670	351	560	293	3.8	ACS800-507-0400-3	D4
816	1000	1400	566	524	960	503	800	419	5	ACS800-507-0570-3	D4
1143	1400	1848	792	733	1340	702	1120	587	7.6	ACS800-507-0790-3	2xD4
1518	1860	2604	1052	974	1790	938	1490	780	10	ACS800-507-1050-3	2xD4
2278	2790	3906	1578	1461	2685	1406	2230	1168	15	ACS800-507-1580-3	3xD4
3037	3720	5208	2104	1949	3580	1875	2980	1561	20	ACS800-507-2100-3	4xD4
3796	4650	6510	2630	2436	4475	2344	3720	1949	25	ACS800-507-2630-3	5xD4
12-pulse regenerative (TSU)											
1865	2285	3700	1292	1215	2161	1149	1665	885	13	ACS800-807-1290-3	B4
3072	3763	6094	2128	2010	3555	1890	2741	1457	20	ACS800-807-2130-3	B4
4654	5701	9234	3224	3031	5393	2867	4260	2265	33	ACS800-807-3220-3	B5

Nominal Ratings:
 $I_{\text{cont. max}}$: rated current available continuously without overloadability at 40°C.

I_{max} : maximum output current.

Typical Ratings:
No-overload use

$P_{\text{cont. max}}$: power in no-overload use.

Light-overload use

I_N : continuous current allowing 110% I_N for 1min/5 min at 40°C.

P_N : power in light-overload use.

Heavy-duty use

I_{hd} : continuous current allowing 150% I_{hd} for 1min/5 min at 40°C.

P_{hd} : power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

The ratings apply in 40°C ambient temperature. In lower temperatures the ratings are higher (except I_{max}).

Dimensions (for ACU, ICU and ISU/DSU/TSU)

Frame size	Height	Width	Depth	Weight	Noise level	Noise level	Air flow
	mm	mm	mm	kg	dB(A)	dB(A) ⁴⁾	m ³ /h
IGBT supply unit (ISU)							
R7i	2130 ¹⁾	1000	644	350	72	-	1300
R8i	2130 ¹⁾	1400 ²⁾	644	950	74	62	1880
2xR8i	2130 ¹⁾	2000 ³⁾	644	1750	76	64	3840
3xR8i	2130 ¹⁾	2600 ³⁾	644	2400	78	66	6400
4xR8i	2130 ¹⁾	2800 ³⁾	644	2580	78	66	7680
6xR8i	2130 ¹⁾	4000 ³⁾	644	3600	80	68	11520
6-pulse diode (DSU)							
D3	2130 ¹⁾	1200	644	840	65	55	720
D4	2130 ¹⁾	1200	644	840	65	55	720
2xD4	2130 ¹⁾	1800 ³⁾	644	1060	67	57	1440
3xD4	2130 ¹⁾	2000 ³⁾	644	1330	68	58	2160
4xD4	2130 ¹⁾	2400 ³⁾	644	1900	69	59	2880
5xD4	2130 ¹⁾	3000 ³⁾	644	2170	70	60	3600

Frame size	Height	Width	Depth	Weight	Noise level	Noise level	Air flow
	mm	mm	mm	kg	dB(A)	dB(A) ⁴⁾	m ³ /h
6-pulse regenerative (TSU)							
B4	2130 ¹⁾	2800	644	1690	72	-	2500
B5	2130 ¹⁾	2800	644	2090	75	-	4500
12-pulse diode (DSU)							
D4	2130 ¹⁾	1300	644	840	65	55	720
2xD4	2130 ¹⁾	1700	644	1060	67	57	1440
3xD4	2130 ¹⁾	2600 ³⁾	644	1330	68	58	2160
4xD4	2130 ¹⁾	3000 ³⁾	644	1900	69	59	2880
5xD4	2130 ¹⁾	3200 ³⁾	644	2170	70	60	3600
12-pulse regenerative (TSU)							
B4	2130	5200	644	3290	74	-	5000
B5	2130	5200	644	3290	77	-	9000

¹⁾ Cabinet height is 2315 mm for IP54 classification and for IPXXR 2051 mm. An additional 10 mm is required for marine supports.

²⁾ Width 1600 mm if UL or CSA approved.

³⁾ An additional 300 mm cabinet is required when top connection of supply cables is needed.

⁴⁾ Average noise level with controlled cooling fan.



Multidrive ratings, types and voltages

Drive unit, $U_N = 500$

ACS800 - 107 - XXXX - 5 + XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Heat dissipation kW	Type code	Frame size
$I_{cont. max}$ A (AC)	I_{max} A	$P_{cont. max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW			
$U_N = 500$ V (Range 380-500 V)									
4.9	7	2.2	4.5	2.2	3.4	1.5	0.1	ACS800-107-0004-5	R2i
6.2	8	3	5.6	3	4.2	2.2	0.1	ACS800-107-0005-5	R2i
8.1	11	4	7.7	4	5.6	3	0.2	ACS800-107-0006-5	R2i
11	14	5.5	10	5.5	7.5	4	0.2	ACS800-107-0009-5	R2i
13	18	7.5	12	7.5	9.2	5.5	0.3	ACS800-107-0011-5	R2i
19	24	11	18	11	13	7.5	0.3	ACS800-107-0016-5	R3i
25	32	15	23	15	18	11	0.4	ACS800-107-0020-5	R3i
34	46	18.5	31	18.5	23	15	0.5	ACS800-107-0025-5	R3i
42	62	22	39	22	32	18.5	0.6	ACS800-107-0030-5	R4i
48	72	30	44	30	36	22	0.8	ACS800-107-0040-5	R4i
65	86	37	61	37	50	30	1	ACS800-107-0050-5	R5i
79	112	45	75	45	60	37	1.2	ACS800-107-0060-5	R5i
96	138	55	88	55	69	45	1.4	ACS800-107-0070-5	R5i
115	172	75	110	75	86	55	1.1	ACS800-107-0105-5	R7i
135	202	90	130	90	101	55	1.3	ACS800-107-0125-5	R7i
166	248	110	159	110	124	75	1.7	ACS800-107-0145-5	R7i
208	312	132	200	132	156	90	2.0	ACS800-107-0175-5	R7i
250	374	160	240	160	187	110	2.2	ACS800-107-0215-5	R7i
315	457	200	302	200	236	132	3.2	ACS800-107-0260-5	R8i
365	530	250	350	250	273	160	4	ACS800-107-0320-5	R8i
455	660	315	437	315	340	200	5.4	ACS800-107-0400-5	R8i
525	762	355	504	355	393	250	5.9	ACS800-107-0460-5	R8i
700	1016	500	672	500	524	355	7.8	ACS800-107-0610-5	R8i
1050	1524	710	1008	710	785	560	12	ACS800-107-0910-5	2xR8i
1372	1991	1000	1317	1000	1026	710	15	ACS800-107-1210-5	2xR8i
2037	2956	1450	1956	1450	1524	1120	22	ACS800-107-1820-5	3xR8i
2688	3901	2000	2580	1850	2011	1400	29	ACS800-107-2430-5	4xR8i
3343	4850	2400	3209	2400	2500	1600	36	ACS800-107-3030-5	5xR8i
3990	5790	2900	3830	2900	2985	2000	43	ACS800-107-3640-5	6xR8i

Standard options:

- Cable top exit
- DC switch with capacitor charging circuits
- Ground fault protection with current transformer(s)
- Output du/dt filter, standard for parallel connected inverters
- Common motor connection terminals with parallel connected inverters

Dimensions

Frame size	Height mm	Width mm	Width with top exit mm	Depth mm	Weight kg	Noise level dB(A)	Noise level dB(A) ⁵⁾	Air flow m ³ /h
R2i	2130 ¹⁾	400 ²⁾	-	644	180	62	-	35
R3i	2130 ¹⁾	400 ²⁾	-	644	180	62	-	69
R4i	2130 ¹⁾	400 ²⁾	-	644	180	62	-	103
R5i	2130 ¹⁾	400 ²⁾	-	644	180	65	-	168
R7i	2130 ¹⁾	400	700 ⁴⁾	644 ³⁾	200	72	-	800
R8i	2130 ¹⁾	400 ³⁾	700 ^{3/4)}	644 ³⁾	320	72	60	1280
2xR8i	2130 ¹⁾	600 ³⁾	900 ^{3/4)}	644 ³⁾	510	74	62	2560
3xR8i	2130 ¹⁾	800 ³⁾	1200 ^{3/4)}	644 ³⁾	660	76	64	3840
4xR8i	2130 ¹⁾	1200 ³⁾	1600 ^{3/4)}	644 ³⁾	1020	76	64	5120
5xR8i	2130 ¹⁾	1400 ³⁾	1800 ^{3/4)}	644 ³⁾	1170	77	65	6400
6xR8i	2130 ¹⁾	1600 ³⁾	2200 ^{3/4)}	644 ³⁾	1320	78	66	7680

Nominal Ratings:

$I_{cont. max}$: rated current available continuously without overloadability at 40°C.

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

Typical Ratings:

No-overload use

$P_{cont. max}$: typical motor power in no-overload use.

Light-overload use

I_N : continuous current allowing 110% I_N for 1min/ 5 min at 40°C.

P_N : typical motor power in light-overload use.

Heavy-duty use

I_{hd} : continuous current allowing 150% I_{hd} for 1min/ 5 min at 40°C.

P_{hd} : typical motor power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

The ratings apply in 40°C ambient temperature.

In lower temperatures the ratings are higher (except I_{max}).

The rated current of the ACS800 must be higher than or equal to the rated motor current to achieve the rated motor power given in the table.

- 1) Cabinet height is 2135 mm for IP54 classification and for IPXXR 2051 mm. An additional 10 mm is required for marine supports.
- 2) 1-3 x R2i, 1-3 x R3i, 1-2 x R4i, 1-2 x R5i.
- 3) 300 mm is required for Drive Control Unit (DCU). One DCU can be used for two drive units.
- 4) Delivered with additional cabinet(s), when top exit or common motor output connection is required.
- 5) Average noise level with controlled cooling fan.
- 6) Alternative for top exit with additional cabinet: Backpack, depth is an additional 120 mm.

Multidrive ratings, types and voltages

Supply unit, $U_N = 500\text{ V}$



ACS800 - X07 - XXXX - 5 + XXXX

Nominal ratings				No-overload use	Light-overload use		Heavy-duty use		Heat dissipation kW	Type code	Frame size
$I_{\text{cont.max}}$ A (AC)	$I_{\text{cont.max}}$ A (DC)	I_{max} A (DC)	S_N kVA	$P_{\text{cont.max}}$ kW (DC)	I_N A (DC)	P_N kW (DC)	I_{hd} A (DC)	P_{hd} kW (DC)			
$U_N = 500\text{ V}$ (Range 380-500 V)											
IGBT supply unit (ISU)											
180	218	327	156	154	210	148	163	115	4.0	ACS800-207-0165-5	R7i
220	267	394	191	189	256	181	200	141	4.4	ACS800-207-0195-5	R7i
270	327	475	220	231	314	222	245	173	6.2	ACS800-207-0230-5	R8i
360	436	633	312	309	419	296	327	231	8.4	ACS800-207-0310-5	R8i
450	546	792	390	386	524	370	408	289	11	ACS800-207-0390-5	R8i
600	727	1056	520	514	698	494	544	385	15	ACS800-207-0520-5	R8i
900	1091	1584	779	772	1048	741	816	577	21	ACS800-207-0780-5	2xR8i
1176	1426	2069	1018	1008	1369	968	1067	754	29	ACS800-207-1020-5	2xR8i
1746	2117	3072	1512	1497	2032	1437	1584	1120	43	ACS800-207-1510-5	3xR8i
2304	2794	4054	1995	1975	2682	1896	2090	1478	56	ACS800-207-2000-5	4xR8i
3420	4147	6017	2962	2932	3981	2815	3102	2193	83	ACS800-207-2960-5	6xR8i
6-pulse diode (DSU)											
286	350	462	247	229	335	219	280	183	1.5	ACS800-307-0250-5	D3
408	500	700	353	327	480	314	400	262	2.4	ACS800-307-0350-5	D3
571	700	924	495	458	670	439	560	367	3.8	ACS800-307-0490-5	D4
816	1000	1400	707	655	960	629	800	524	5	ACS800-307-0710-5	D4
1143	1400	1848	990	917	1340	877	1120	733	7.6	ACS800-307-0990-5	2xD4
1518	1860	2604	1315	1218	1790	1172	1490	976	10	ACS800-307-1310-5	2xD4
2278	2790	3906	1972	1827	2685	1758	2230	1460	15	ACS800-307-1970-5	3xD4
3037	3720	5208	2630	2436	3580	2344	2980	1951	20	ACS800-307-2630-5	4xD4
3796	4650	6510	3287	3045	4475	2930	3720	2436	25	ACS800-307-3290-5	5xD4
6-pulse regenerative (TSU)											
981	1202	1947	850	792	1137	749	881	580	6.3	ACS800-407-0850-5	B4
1617	1980	208	1400	1304	1872	1233	1450	955	10	ACS800-407-1400-5	B4
2449	3000	4860	2120	1976	2838	1869	2244	1478	17	ACS800-407-2120-5	B5
2858	3500	5670	2475	2305	3310	2180	2618	1724	21	ACS800-407-2600-5	B5
12-pulse diode (DSU)											
571	700	924	495	458	670	439	560	367	3.8	ACS800-507-0490-5	D4
816	1000	1400	707	655	960	629	800	524	5	ACS800-507-0710-5	D4
1143	1400	1848	990	917	1340	877	1120	733	7.6	ACS800-507-0990-5	2xD4
1518	1860	2604	1315	1218	1790	1172	1490	976	10	ACS800-507-1310-5	2xD4
2278	2790	3906	1972	1827	2685	1758	2230	1460	15	ACS800-507-1970-5	3xD4
3037	3720	5208	2630	2436	3580	2344	2980	1951	20	ACS800-507-2630-5	4xD4
3796	4650	6510	3287	3045	4475	2930	3720	2436	25	ACS800-507-3290-5	5xD4
12-pulse regenerative (TSU)											
1864	2283	3700	1614	1504	2161	1423	1672	1101	13	ACS800-807-1615-5	B4
3072	3764	6094	2661	2479	3556	2342	2758	1816	20	ACS800-807-2660-5	B4
4653	5700	9234	4030	3754	5392	3551	4252	2800	33	ACS800-807-4030-5	B5
5430	6652	10773	4703	4381	6293	4144	4976	3277	42	ACS800-807-4700-5	B5

Nominal Ratings:
 $I_{\text{cont.max}}$: rated current available continuously without overloadability at 40°C.

I_{max} : maximum output current.

Typical Ratings:
No-overload use

$P_{\text{cont.max}}$: power in no-overload use.

Light-overload use

I_N : continuous current allowing 110% I_N for 1min/5 min at 40°C.

P_N : power in light-overload use.

Heavy-duty use

I_{hd} : continuous current allowing 150% I_{hd} for 1min/5 min at 40°C.

P_{hd} : power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

The ratings apply in 40°C ambient temperature. In lower temperatures the ratings are higher (except I_{max}).

Dimensions (for ACU, ICU and ISU/DSU/TSU)

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Noise level dB(A) ⁽⁴⁾	Air flow m ³ /h
IGBT supply unit (ISU)							
R7i	2130 ⁽¹⁾	1000	644	350	72	-	1300
R8i	2130 ⁽¹⁾	1400 ⁽²⁾	644	950	74	62	1880
2xR8i	2130 ⁽¹⁾	2000 ⁽³⁾	644	1750	76	64	3840
3xR8i	2130 ⁽¹⁾	2600 ⁽³⁾	644	2400	78	66	6400
4xR8i	2130 ⁽¹⁾	2800 ⁽³⁾	644	2580	78	66	7680
6xR8i	2130 ⁽¹⁾	4000 ⁽³⁾	644	3600	80	68	11520
6-pulse diode (DSU)							
D3	2130 ⁽¹⁾	1200	644	840	65	55	720
D4	2130 ⁽¹⁾	1200	644	840	65	55	720
2xD4	2130 ⁽¹⁾	1800 ⁽³⁾	644	1060	67	57	1440
3xD4	2130 ⁽¹⁾	2000 ⁽³⁾	644	1330	68	58	2160
4xD4	2130 ⁽¹⁾	2400 ⁽³⁾	644	1900	69	59	2880
5xD4	2130 ⁽¹⁾	3000 ⁽³⁾	644	2170	70	60	3600

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Noise level dB(A) ⁽⁴⁾	Air flow m ³ /h
6-pulse regenerative (TSU)							
B4	2130 ⁽¹⁾	2800	644	1690	72	-	2500
B5	2130 ⁽¹⁾	2800	644	2090	75	-	4500
12-pulse diode (DSU)							
D4	2130 ⁽¹⁾	1300	644	840	65	55	720
2xD4	2130 ⁽¹⁾	1700	644	1060	67	57	1440
3xD4	2130 ⁽¹⁾	2600 ⁽³⁾	644	1330	68	58	2160
4xD4	2130 ⁽¹⁾	3000 ⁽³⁾	644	1900	69	59	2880
5xD4	2130 ⁽¹⁾	3200 ⁽³⁾	644	2170	70	60	3600
12-pulse regenerative (TSU)							
B4	2130	5200	644	3290	74	-	5000
B5	2130	5200	644	3290	77	-	9000

¹⁾ Cabinet height is 2315 mm for IP54 classification and for IPXXR 2051 mm. An additional 10 mm is required for marine supports.

²⁾ Width 1600 mm if UL or CSA approved

³⁾ An additional 300 mm cabinet is required when top connection of supply cables is needed.

⁴⁾ Average noise level with controlled cooling fan.



Multidrive ratings, types and voltages

Drive unit, $U_N = 690\text{ V}$

ACS800 - 107 - XXXX - 7 + XXXX

Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Heat dissipation kW	Type code	Frame size
$I_{\text{cont,max}}$ A (AC)	I_{max} A	$P_{\text{cont,max}}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW			
$U_N = 690\text{ V}$ (Range 525-690 V)									
13	14	11	12	7.5	8.5	5.5	0.3	ACS800-107-0011-7	R4i
17	19	15	16	11	11	7.5	0.3	ACS800-107-0016-7	R4i
22	28	18.5	21	15	15	11	0.4	ACS800-107-0020-7	R4i
25	38	22	24	18.5	19	15	0.5	ACS800-107-0025-7	R4i
33	44	30	32	22	22	18.5	0.6	ACS800-107-0030-7	R4i
36	54	30	35	30	27	22	0.7	ACS800-107-0040-7	R4i
51	68	45	49	37	34	30	0.8	ACS800-107-0050-7	R5i
57	84	55	55	45	42	37	1	ACS800-107-0060-7	R5i
69	104	55	66	55	52	45	1.1	ACS800-107-0075-7	R7i
88	132	75	84	75	66	55	1.3	ACS800-107-0105-7	R7i
105	158	90	101	90	79	75	1.6	ACS800-107-0125-7	R7i
132	198	110	127	110	99	90	2.0	ACS800-107-0145-7	R7i
150	224	132	144	132	112	90	2.3	ACS800-107-0175-7	R7i
170	254	160	163	160	127	110	2.6	ACS800-107-0215-7	R7i
215	322	200	206	200	161	160	3.6	ACS800-107-0260-7	R8i
289	432	250	277	250	216	200	4.8	ACS800-107-0320-7	R8i
336	503	315	323	315	251	240	6.1	ACS800-107-0400-7	R8i
382	571	355	367	355	286	270	7	ACS800-107-0440-7	R8i
486	727	450	467	450	364	355	7.5	ACS800-107-0580-7	R8i
729	1091	710	700	710	545	500	13	ACS800-107-0870-7	2xR8i
953	1425	900	914	900	713	710	15	ACS800-107-1160-7	2xR8i
1414	2116	1400	1358	1400	1058	1000	22	ACS800-107-1740-7	3xR8i
1866	2792	1900	1792	1800	1396	1400	29	ACS800-107-2320-7	4xR8i
2321	3472	2300	2228	2200	1736	1600	35	ACS800-107-2900-7	5xR8i
2770	4144	2800	2659	2700	2072	2000	42	ACS800-107-3490-7	6xR8i
3232	4835	3200	3103	3100	2417	2400	49	ACS800-107-4070-7	7xR8i
3694	5526	3700	3546	3600	2763	2800	56	ACS800-107-4650-7	8xR8i
4155	6216	4200	3989	4000	3108	3100	63	ACS800-107-5230-7	9xR8i
4617	6907	4600	4432	4500	3454	3500	70	ACS800-107-5810-7	10xR8i
5079	7598	5100	4876	4900	3799	3800	77	ACS800-107-6390-7	11xR8i
5540	8288	5600	5319	5400	4144	4200	84	ACS800-107-6970-7	12xR8i

Standard options:

- Cable top exit
- DC switch with capacitor charging circuits
- Ground fault protection with current transformer(s)
- Output du/dt filter, standard for parallel connected inverters
- Common motor connection terminals with parallel connected inverters

Dimensions

Frame size	Height mm	Width mm	Width with top exit mm	Depth mm	Weight kg	Noise level dB(A)	Noise level dB(A) ⁵⁾	Air flow m ³ /h
R4i	2130 ¹⁾	400 ²⁾	-	644	180	62	-	103
R5i	2130 ¹⁾	400 ²⁾	-	644	180	65	-	168
R7i	2130 ¹⁾	400	700 ⁴⁾	644 ⁵⁾	200	72	-	800
R8i	2130 ¹⁾	400 ³⁾	700 ³⁾⁴⁾	644 ⁵⁾	320	72	60	1280
2xR8i	2130 ¹⁾	600 ³⁾	900 ³⁾⁴⁾	644 ⁵⁾	510	74	62	2560
3xR8i	2130 ¹⁾	800 ³⁾	1200 ³⁾⁴⁾	644 ⁵⁾	660	76	64	3840
4xR8i	2130 ¹⁾	1200 ³⁾	1600 ³⁾⁴⁾	644 ⁵⁾	1020	76	64	5120
5xR8i	2130 ¹⁾	1400 ³⁾	1800 ³⁾⁴⁾	644 ⁵⁾	1170	77	65	6400
6xR8i	2130 ¹⁾	1600 ³⁾	2200 ⁴⁾	644 ⁵⁾	1320	78	66	7680
7xR8i	2130 ¹⁾	2000 ³⁾	2600 ⁴⁾	644 ⁵⁾	1680	78	66	8960
8xR8i	2130 ¹⁾	2200 ³⁾	3000 ⁴⁾	644 ⁵⁾	1830	79	67	10240
9xR8i	2130 ¹⁾	2400 ³⁾	3200 ⁴⁾	644 ⁵⁾	1980	79	67	11520
10xR8i	2130 ¹⁾	2800 ³⁾	3800 ⁴⁾	644 ⁵⁾	2340	79	67	12800
11xR8i	2130 ¹⁾	3000 ³⁾	4200 ⁴⁾	644 ⁵⁾	2490	79	67	14080
12xR8i	2130 ¹⁾	3200 ³⁾	4400 ⁴⁾	644 ⁵⁾	2640	79	67	15360

Nominal Ratings:

$I_{\text{cont,max}}$: rated current available continuously without overloadability at 40°C.

I_{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 in no-overload use.

Light-overload use

I_N : continuous current allowing 110% I_N for 1min/ 5 min at 40°C.

P_N : typical motor power in light-overload use.

Heavy-duty use

I_{hd} : continuous current allowing 150% I_{hd} for 1min/ 5 min at 40°C.

P_{hd} : typical motor power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

The ratings apply in 40°C ambient temperature.

In lower temperatures the ratings are higher (except I_{max}).

The rated current of the ACS800 must be higher than or equal to the rated motor current to achieve the rated motor power given in the table.

- 1) Cabinet height is 2315 mm for IP54 classification and for IPXXR 2051 mm. An additional 10 mm is required for marine supports.
- 2) 1-3 x R2i, 1-3 x R3i, 1-2 x R4i, 1-2 x R5i.
- 3) 300 mm is required for Drive Control Unit (DCU). One DCU can be used for two drive units.
- 4) Delivered with additional cabinet(s), when top exit or common motor output connection is required.
- 5) Average noise level with controlled cooling fan.
- 6) Alternative for top exit with additional cabinet: Backpack, depth is an additional 120 mm.



Multidrive ratings, types and voltages

Supply unit, $U_N = 690\text{ V}$

ACS800 - X07 - XXXX - 7 + XXXX

Nominal ratings				No-overload use	Light-overload use		Heavy-duty use		Heat dissipation kW	Type code	Frame size
$I_{cont,max}$ A (AC)	$I_{cont,max}$ A (DC)	I_{max} A (DC)	S_N kVA	$P_{cont,max}$ kW (DC)	I_N A (DC)	P_N kW (DC)	I_{hd} A (DC)	P_{hd} kW (DC)			
$U_N = 690\text{ V}$ (Range 525-690 V)											
IGBT supply unit (ISU)											
119	144	216	142	141	139	135	108	105	4.6	ACS800-207-0155-7	R7i
135	164	245	161	160	157	153	122	119	5.2	ACS800-207-0175-7	R7i
180	218	327	215	213	210	204	163	159	8.3	ACS800-207-0220-7	R8i
250	303	453	299	296	291	284	227	221	9.4	ACS800-207-0300-7	R8i
300	364	544	359	355	349	341	272	266	13	ACS800-207-0360-7	R8i
400	485	726	478	473	466	454	363	354	15	ACS800-207-0480-7	R8i
600	727	1088	717	710	698	682	544	531	27	ACS800-207-0720-7	2xR8i
784	951	1422	937	928	913	890	711	694	29	ACS800-207-0940-7	2xR8i
1164	1411	2111	1391	1377	1355	1322	1056	1030	42	ACS800-207-1390-7	3xR8i
1536	1862	2786	1836	1817	1788	1745	1393	1359	56	ACS800-207-1840-7	4xR8i
2280	2764	4136	2725	2698	2654	2590	2068	2018	83	ACS800-207-2730-7	6xR8i
3040	3686	5514	3633	3597	3539	3453	2757	2690	110	ACS800-207-3630-7	8xR8i
3800	4607	6893	4541	4496	4423	4316	3446	3363	138	ACS800-207-4550-7	10xR8i
4560	5529	8271	5450	5395	5308	5179	4136	4036	165	ACS800-207-5450-7	12xR8i
6-pulse diode (DSU)											
286	350	462	341	316	335	303	280	253	1.5	ACS800-307-0340-7	D3
408	500	700	488	452	480	434	400	361	2.4	ACS800-307-0490-7	D3
571	700	924	683	632	670	605	560	506	3.8	ACS800-307-0680-7	D4
816	1000	1400	976	904	960	867	800	723	5	ACS800-307-0980-7	D4
1143	1400	1848	1366	1265	1340	1211	1120	1012	7.6	ACS800-307-1370-7	2xD4
1518	1860	2604	1815	1681	1790	1617	1490	1346	10	ACS800-307-1810-7	2xD4
2278	2790	3906	2722	2521	2685	2426	2230	2015	15	ACS800-307-2720-7	3xD4
3037	3720	5208	3629	3361	3580	3235	2980	2693	20	ACS800-307-3630-7	4xD4
3796	4650	6510	4537	4202	4475	4043	3720	3361	25	ACS800-307-4540-7	5xD4
6-pulse regenerative (TSU)											
711	871	1411	850	784	824	742	637	574	6.3	ACS800-407-0850-7	B4
1171	1435	2325	1400	1292	1353	1219	1050	946	10	ACS800-407-1400-7	B4
2176	2664	4316	2600	2399	2519	2269	1993	1795	17	ACS800-407-2600-7	B5
2858	3500	5670	3415	3152	3311	2982	2618	2358	21	ACS800-407-3600-7	B5
12-pulse diode (DSU)											
571	700	924	683	632	670	605	560	506	3.8	ACS800-507-0680-7	D4
816	1000	1400	976	904	960	867	800	723	5	ACS800-507-0980-7	D4
1143	1400	1848	1366	1265	1340	1211	1120	1012	7.6	ACS800-507-1370-7	2xD4
1518	1860	2604	1815	1681	1790	1617	1490	1346	10	ACS800-507-1810-7	2xD4
2278	2790	3906	2722	2521	2685	2426	2230	2015	15	ACS800-507-2720-7	3xD4
3037	3720	5208	3629	3361	3580	3235	2980	2693	20	ACS800-507-3630-7	4xD4
3796	4650	6510	4537	4202	4475	4043	3720	3361	25	ACS800-507-4540-7	5xD4
12-pulse regenerative (TSU)											
1351	1655	2681	1614	1490	1564	1409	1211	1091	13	ACS800-807-1615-7	B4
2225	2726	4417	2659	2455	2576	2320	1996	1798	20	ACS800-807-2660-7	B4
4134	5065	8200	4941	4561	4790	4314	3788	3412	33	ACS800-807-4950-7	B5
5430	6652	10773	6490	5991	6292	5667	4975	4481	42	ACS800-807-6500-7	B5

Nominal Ratings:
 $I_{cont,max}$: rated current available continuously without overloadability at 40°C.

I_{max} : maximum output current.

Typical Ratings:
No-overload use
 $P_{cont,max}$: power in no-overload use.

Light-overload use
 I_N : continuous current allowing 110% I_N for 1min/5 min at 40°C.

P_N : power in light-overload use.

Heavy-duty use
 I_{hd} : continuous current allowing 150% I_{hd} for 1min/5 min at 40°C.

P_{hd} : power in heavy-duty use.

The current ratings are the same regardless of the supply voltage within one voltage range.

The ratings apply in 40°C ambient temperature. In lower temperatures the ratings are higher (except I_{max}).

Dimensions (for ACU, ICU and ISU/DSU/TSU)

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Noise level dB(A) ⁽⁴⁾	Air flow m ³ /h
IGBT supply unit (ISU)							
R7i	2130 ⁽¹⁾	1000	644	350	72	-	1300
R8i	2130 ⁽¹⁾	1400 ⁽²⁾	644	950	74	62	1880
2xR8i	2130 ⁽¹⁾	2000 ⁽³⁾	644	1750	76	64	3840
3xR8i	2130 ⁽¹⁾	2600 ⁽³⁾	644	2400	78	66	6400
4xR8i	2130 ⁽¹⁾	2800 ⁽³⁾	644	2580	78	66	7680
6xR8i	2130 ⁽¹⁾	4000 ⁽³⁾	644	3400	80	68	11520
8xR8i	2130 ⁽¹⁾	4400 ⁽³⁾	644	4250	81	69	15360
10xR8i	2130 ⁽¹⁾	5600 ⁽³⁾	644	5280	81	69	19200
12xR8i	2130 ⁽¹⁾	6400 ⁽³⁾	644	6100	81	69	23040
6-pulse diode (DSU)							
D3	2130 ⁽¹⁾	1200	644	840	65	55	720
D4	2130 ⁽¹⁾	1200	644	840	65	55	720
2xD4	2130 ⁽¹⁾	1800 ⁽³⁾	644	1060	67	57	1440
3xD4	2130 ⁽¹⁾	2000 ⁽³⁾	644	1330	68	58	2160
4xD4	2130 ⁽¹⁾	2400 ⁽³⁾	644	1900	69	59	2880
5xD4	2130 ⁽¹⁾	3000 ⁽³⁾	644	2170	70	60	3600

Frame size	Height mm	Width mm	Depth mm	Weight kg	Noise level dB(A)	Noise level dB(A) ⁽⁴⁾	Air flow m ³ /h
6-pulse regenerative (TSU)							
B4	2130 ⁽¹⁾	2800	644	1690	72	-	2500
B5	2130 ⁽¹⁾	2800	644	2090	75	-	4500
12-pulse diode (DSU)							
D4	2130 ⁽¹⁾	1300	644	840	65	55	720
2xD4	2130 ⁽¹⁾	1700	644	1060	67	57	1440
3xD4	2130 ⁽¹⁾	2600 ⁽³⁾	644	1330	68	58	2160
4xD4	2130 ⁽¹⁾	3000 ⁽³⁾	644	1900	69	59	2880
5xD4	2130 ⁽¹⁾	3200 ⁽³⁾	644	2170	70	60	3600
12-pulse regenerative (TSU)							
B4	2130	5200	644	3290	74	-	5000
B5	2130	5200	644	3290	77	-	9000

⁽¹⁾ Cabinet height is 2315 mm for IP54 classification and for IPXXR 2051 mm. An additional 10 mm is required for marine supports.

⁽²⁾ Width 1600 mm if UL or CSA approved

⁽³⁾ An additional 300 mm cabinet is required when top connection of supply cables is needed.

⁽⁴⁾ Average noise level with controlled cooling fan.

Brake options

Brake units



Type code	Nominal ratings					Duty cycle (1min/5min)		Duty cycle (10s/60s)							Module type
	P _{br,max}	R	I _{max}	I _{rms}	P _{cont.}	P _{br.}	I _{rms}	P _{br.}	I _{rms}	Height ²⁾	Width ¹⁾³⁾	Weight	Noise	Air flow	
	kW	ohm	A	A	kW	kW	A	kW	A	mm	mm	kg	dB(A)	m ³ /h	
U_N = 400 V (Range 380 - 415 V)															
ACS800-607-0320-3	353	1.2	545	149	96	303	468	353	545	2130	400	110	64	660	NBRA659
ACS800-607-0640-3	706	0.6	1090	298	192	606	936	706	1090	2130	800	220	67	1320	2 x NBRA659
ACS800-607-1280-3	1411	0.3	2180	596	384	1212	1872	1412	2180	2130	1600	440	69	2640	4 x NBRA659
ACS800-607-1600-3	1764	0.24	2725	745	480	1515	2340	1765	2725	2130	2000	550	70	3300	5 x NBRA659
ACS800-607-1920-3	2117	0.2	3270	894	576	1818	2808	2118	3270	2130	2400	660	71	3960	6 x NBRA659
ACS800-607-0320-3+D151	353	1.2	545	84	54	167	257	287	444	2130	1200	340	66	2500	NBRA659
ACS800-607-0640-3+D151	706	0.6	1090	168	108	333	514	575	888	2130	2400	680	69	5000	2 x NBRA6591
ACS800-607-0960-3+D151	1058	0.4	1635	252	162	500	771	862	1332	2130	3600	1020	70	7500	3 x NBRA659
ACS800-607-1280-3+D151	1411	0.3	2180	336	216	667	1028	1150	1776	2130	4800 ¹⁾	1360	71	10000	4 x NBRA659
ACS800-607-1600-3+D151	1764	0.24	2725	420	270	833	1285	1437	2220	2130	6000 ¹⁾	1700	72	12500	5 x NBRA659
ACS800-607-1920-3+D151	2117	0.2	3270	504	324	1000	1542	1724	2664	2130	7200 ¹⁾	2040	73	15000	6 x NBRA659
U_N = 500 V (Range 385 - 500 V)															
ACS800-607-0400-5	403	1.43	571	136	109	317	391	403	498	2130	400	110	64	660	NBRA659
ACS800-607-0800-5	806	0.72	1142	272	218	634	782	806	996	2130	800	220	67	1320	2 x NBRA659
ACS800-607-1200-5	1208	0.48	1713	408	327	951	1173	1209	1494	2130	1200	330	68	1980	3 x NBRA659
ACS800-607-1600-5	1611	0.36	2284	544	436	1268	1564	1612	1992	2130	1600	440	69	2640	4 x NBRA659
ACS800-607-2000-5	2014	0.29	2855	680	545	1585	1955	2015	2490	2130	2000	550	70	3300	5 x NBRA659
ACS800-607-2400-5	2417	0.24	3426	816	654	1902	2346	2418	2988	2130	2400	660	71	3960	6 x NBRA659
ACS800-607-0400-5+D151	403	1.35	605	67	54	167	206	287	355	2130	1200	340	66	2500	NBRA659
ACS800-607-0800-5+D151	806	0.68	1210	134	108	333	412	575	710	2130	2400	680	69	5000	2 x NBRA659
ACS800-607-1200-5+D151	1208	0.45	1815	201	162	500	618	862	1065	2130	3600	1020	70	7500	3 x NBRA659
ACS800-607-1600-5+D151	1611	0.34	2420	268	216	667	824	1150	1420	2130	4800 ¹⁾	1360	71	10000	4 x NBRA659
ACS800-607-2000-5+D151	2014	0.27	3025	335	270	833	1030	1437	1775	2130	6000 ¹⁾	1700	72	12500	5 x NBRA659
ACS800-607-2400-5+D151	2417	0.23	3630	402	324	1000	1236	1724	2130	2130	7200 ¹⁾	2040	73	15000	6 x NBRA659
U_N = 690 V (Range 525 - 690 V)															
ACS800-607-0400-7	404	2.72	414	107	119	298	267	404	361	2130	400	110	64	660	NBRA669
ACS800-607-0800-7	807	1.36	828	214	238	596	534	808	722	2130	800	220	67	660	2 x NBRA669
ACS800-607-1200-7	1211	0.91	1242	321	357	894	801	1212	1083	2130	1200	330	68	1320	3 x NBRA669
ACS800-607-1600-7	1615	0.68	1656	428	476	1192	1068	1616	1444	2130	1600	440	69	1980	4 x NBRA669
ACS800-607-2000-7	2019	0.54	2070	535	595	1490	1335	2020	1805	2130	2000	550	70	2640	5 x NBRA669
ACS800-607-2400-7	2422	0.45	2484	642	714	1788	1602	2424	2166	2130	2400	660	71	3300	6 x NBRA669
ACS800-607-0400-7+D151 ¹⁾	404	1.35	835	97	54	167	149	287	257	2130	1200	340	66	2500	NBRA669
ACS800-607-0800-7+D151 ¹⁾	807	0.68	1670	194	108	333	298	575	514	2130	2400	680	69	5000	2 x NBRA669
ACS800-607-1200-7+D151 ¹⁾	1211	0.45	2505	291	162	500	447	862	771	2130	3600	1020	70	7500	3 x NBRA669
ACS800-607-1600-7+D151 ¹⁾	1615	0.34	3340	388	216	667	596	1150	1028	2130	4800 ¹⁾	1360	71	10000	4 x NBRA669
ACS800-607-2000-7+D151 ¹⁾	2019	0.27	4175	485	270	833	745	1437	1285	2130	6000 ¹⁾	1700	72	12500	5 x NBRA6691
ACS800-607-2400-7+D151 ¹⁾	2422	0.23	5010	582	324	2000	894	1724	1542	2130	7200 ¹⁾	2040	73	15000	6 x NBRA669

E_r = Energy pulse that the resistor assembly will withstand with the 400 seconds duty cycle.
This energy will heat the resistor element from 40°C to the maximum allowable temperature.

P_{br,max} = Maximum braking power of the NBRA-6xx chopper and SAFUR resistor combination.
The chopper will withstand this braking power for one minute every ten minutes.

Note: The braking energy transmitted to the resistor during any period shorter than 400 seconds may not exceed E_r.

Thus, the standard resistor withstands continuous braking of P_{br, max} typically 20 to 40 seconds (t = E_r / P_{br,max}).

R = Recommended brake resistor resistance. Also nominal resistance of corresponding SAFUR resistor.

I_{max} = Maximum peak current per chopper during braking. Current is achieved with minimum resistor resistance.

I_{rms} = Corresponding rms current per chopper during load cycle.

Heat loss of brake chopper is 1% of braking power.
Heat loss of section with brake resistors is the same as braking power.

¹⁾ Additional 200 mm junction section needed.

²⁾ 2130 mm + additional 10 mm is required for marine supports.

³⁾ Total width of the line-up is the sum of widths of the sections + 30 mm for the end plates.

^{*)} D151 = braking resistor, degree of protection IP21



EMC filters

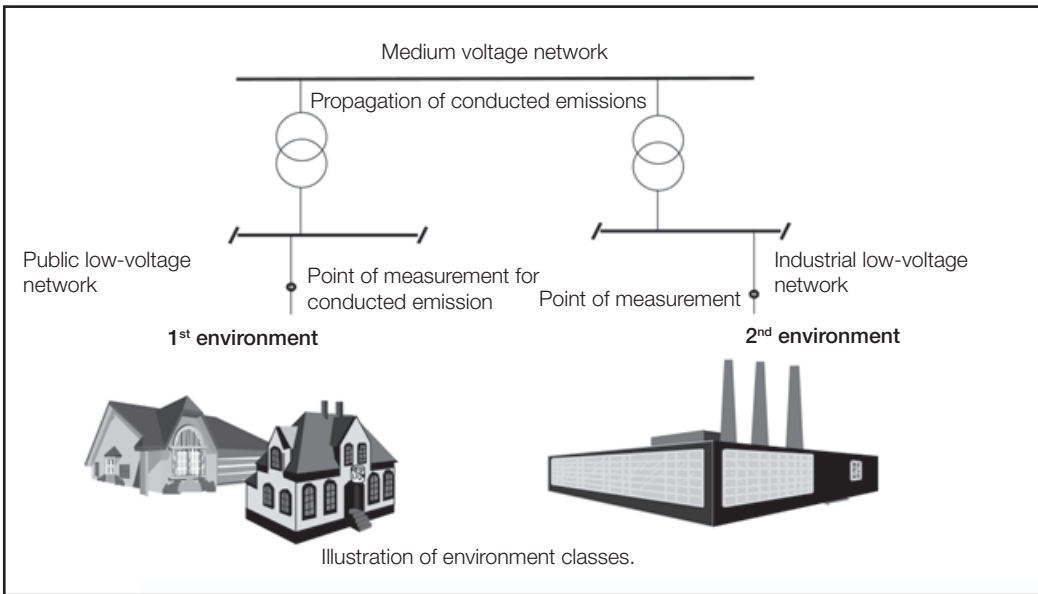
1st environment vs 2nd environment

1st environment

“1st environment includes domestic premises. It also includes establishments directly connected without intermediate transformer to a low-voltage power supply network which supplies buildings used for domestic purposes.”

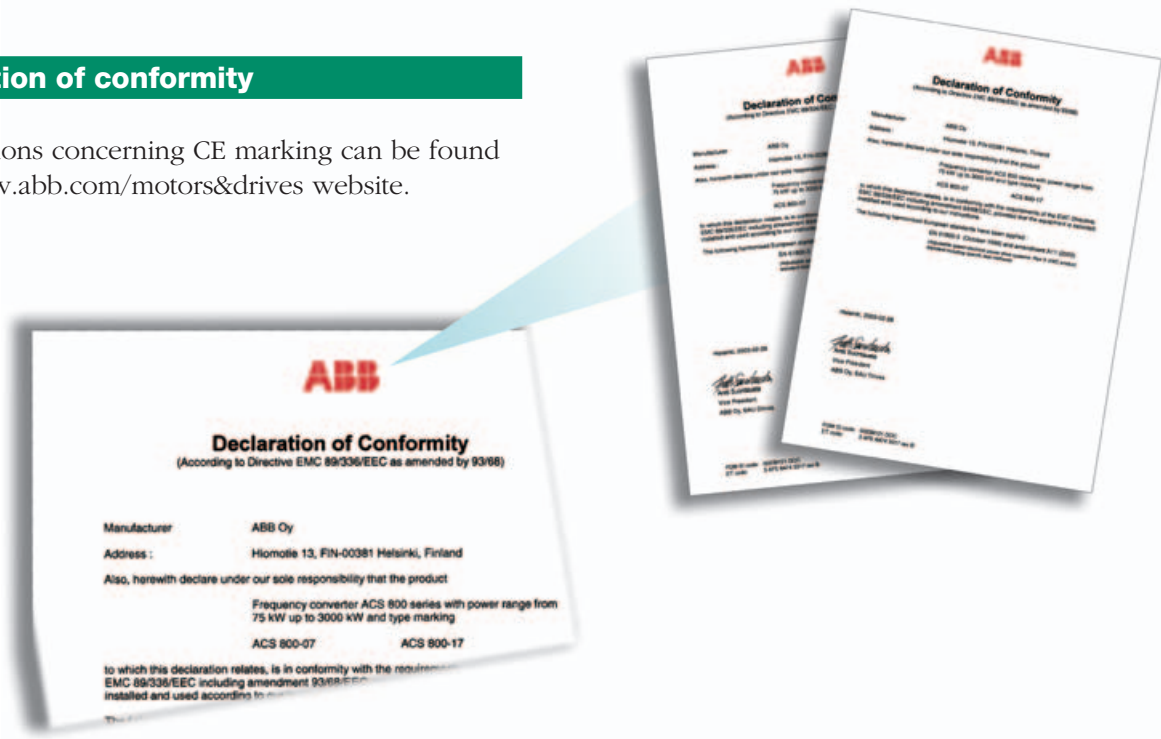
2nd environment

“2nd environment includes all establishments other than those directly connected to a low-voltage power supply network which supplies buildings used for domestic purposes.”



Declaration of conformity

All declarations concerning CE marking can be found on the www.abb.com/motors&drives website.





EMC - Electromagnetic Compatibility and ACS800

The electrical/electronic equipment must be able to operate without problems within an electromagnetic environment. This is called immunity. The ACS800 is designed to have adequate immunity against interference from other equipment. Likewise, the equipment must not disturb or interfere with any other product or system within its locality. This is called emission. Each ACS800 model can be equipped with an inbuilt filter to reduce high frequency emission.

EMC standards

The EMC product standard [EN 61800-3 (2004)] covers requirements stated for drives within the EU. In some cases other standards may be applicable. The emission limits are comparable according to table EMC standards.

Selecting an EMC filter

The following table gives the correct filter selection to fulfil the requirements of the EMC standards.

EMC standards

EN 61800-3/A11 (2000), product standard	EN 61800-3 (2004), product standard	EN 55011, product family standard for industrial, scientific and medical (ISM) equipment	EN 61000-6-4, generic emission standard for industrial environments	EN 61000-6-3, generic emission standard for residential, commercial and light-industrial environment
1 st environment, unrestricted distribution	Category C1	Group 1	Not applicable	Applicable
1 st environment, restricted distribution	Category C2	Group 1	Applicable	Not applicable
2 nd environment, unrestricted distribution	Category C3	Group 2	Not applicable	Not applicable
2 nd environment, restricted distribution	Category C4	Not applicable	Not applicable	Not applicable

Type	Voltage	Frame sizes	1 st environment, restricted distribution, C2, grounded network (TN)	2 nd environment, C3, grounded network (TN)
800-207	400-500	R7i	+E202	Standard
	690		-	Standard
	400-500	nxR8i	+E202	Standard
	690		-	Standard
800-307	400-500	D4	+E202	Standard
	690		-	Standard



Du/dt filters

As with all frequency converters employing the most modern IGBT inverter technology, the ACS800 output comprises - regardless of output frequency - pulses of approximately 1.35 times the mains network voltage with a very short rise time. The voltage can be almost double at the motor terminals, depending on motor cable properties.

Du/dt filtering suppresses inverter output voltage spikes and rapid voltage changes that stress motor insulation. Additionally, du/dt filtering reduces capacitive leakage currents and high frequency emission of the motor cable as well as high frequency losses and bearing currents in the motor.

When is it needed? The need for du/dt filtering depends on the motor insulation. For information on the construction of the motor insulation, consult the manufacturer. If the motor does not fulfil the following requirements, the lifetime of the motor might shorten.

Insulated N-end (non-driven end) bearings and / or common mode filters are also required for motor bearing currents with motors bigger than 100 kW. For more information see the ACS800 hardware manuals.

Filter selection table for ACS800

Motor type	Nominal mains voltage (U_N)	Motor insulation requirement
ABB M2 and M3 motors	$U_N \leq 500$ V	Standard insulation system.
	500 V < $U_N \leq 600$ V	Standard insulation system in conjunction with du/dt filtering or reinforced insulation.
	600 V < $U_N \leq 690$ V	Reinforced insulation system in conjunction with du/dt filtering.
ABB form-wound HXR and AM motors	380 V < $U_N \leq 690$ V	Standard insulation system.
ABB random-wound HXR and AM motors	380 V < $U_N \leq 690$ V	Check motor insulation system with the motor manufacturer. du/dt filtering with voltages over 500 V.
Non-ABB Random-wound and Form-wound	$U_N \leq 420$ V	Insulation system must withstand $\hat{U}_{LL}=1300$ V.
	420 V < $U_N \leq 500$ V	If the insulation system withstands $\hat{U}_{LL}=1600$ V and $\Delta t=0.2$ μ s, du/dt filtering is not required. With du/dt filtering, the insulation system must withstand $\hat{U}_{LL}=1300$ V.
	500 V < $U_N \leq 600$ V	If the insulation system withstands $\hat{U}_{LL}=1800$ V, du/dt filtering is not required. With du/dt filtering, the insulation system must withstand $\hat{U}_{LL}=1600$ V.
	600 V < $U_N \leq 690$ V	If the motor insulation system withstands $\hat{U}_{LL}=2000$ V and $\Delta t=0.3$ μ s, du/dt filtering is not required. With du/dt filtering, the insulation system must withstand $\hat{U}_{LL}=1800$ V.

Symbol	Explanation
U_N	Nominal mains voltage.
\hat{U}_{LL}	Peak line to line voltage at motor terminals.
Δt	Rise time, i.e. interval during which line to line voltage at motor terminals changes from 10% to 90% of full voltage range.



Standard user interface

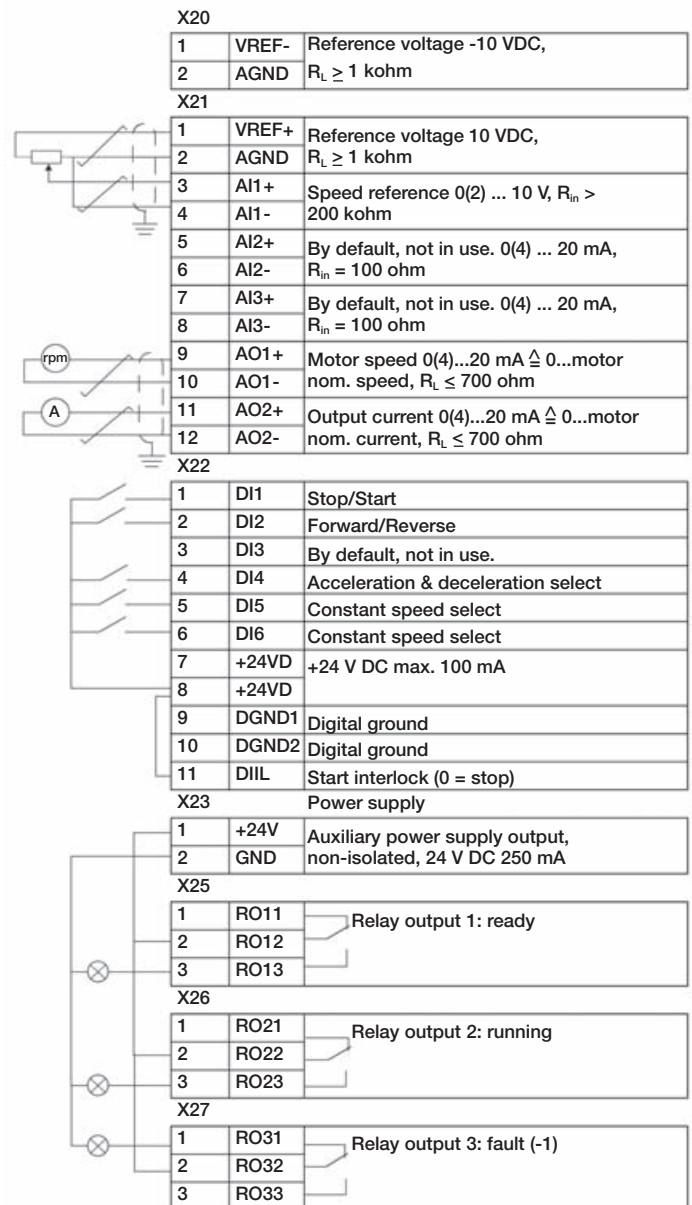
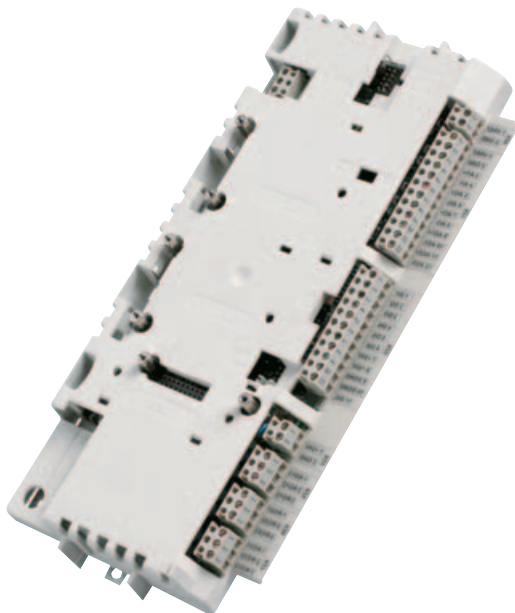
Standard I/O

Analog and digital I/O channels are used for different functions such as control, monitoring and measurement purposes (e.g. motor temperature). In addition, optional I/O extension modules are available providing additional analog or digital I/O connections.

Below are the standard drive control I/O of the ABB industrial drive with factory macro. For other ACS800 application macros the functions may be different.

Standard I/O on RMIO-01 Board

- 3 analog inputs: differential, common mode voltage ± 15 V, galvanically isolated as a group.
 - One $\pm 0(2) \dots 10$ V, resolution 12 bit
 - Two $0(4) \dots 20$ mA, resolution 11 bit
- 2 analog outputs:
 - $0(4) \dots 20$ mA, resolution 10 bit
- 7 digital inputs: galvanically isolated as a group (can be split in two groups)
 - Input voltage 24 V DC
 - Filtering (HW) time 1 ms
- 3 digital (relay) outputs:
 - Changeover contact
 - 24 V DC or 115/230 V AC
 - Max. continuous current 2 A
- Reference voltage output:
 - ± 10 V $\pm 0.5\%$, max. 10 mA
- Auxiliary power supply output:
 - +24 V $\pm 10\%$, max. 250 mA





Options

Control panel

Control panel mounting platforms

The industrial drive control panel (+J400) has a multilingual alphanumeric display (4 lines x 20 characters) with plain text messages in 14 languages.

The control panel is removable and can be mounted on the drive enclosure or remotely.

```
1 L -> 1242.0 RPM 1
SPEED 1242.0 RPM
CURRENT 76.00 A
TORQUE 86.00 %
```



Start-up assistant

Easy commissioning with the start-up assistant. The start-up assistant actively guides you through the commissioning procedure step by step. It also has a unique on-line help function.

```
MOTOR SETUP 4/10
MOTOR NOM CURRENT ?
(75.5 A)
ENTER: OK RESET: BACK
```

Parameter copying

The parameter copy feature allows all drive parameters to be copied from one frequency converter to another to simplify commissioning.

```
1 L-> 1242.0 RPM 1
UPLOAD <=<=<
DOWNLOAD =>=>=>
CONTRAST 4
```

Actual value display

The control panel can display three separate actual values simultaneously.

Examples of these are:

- Motor speed
- Frequency
- Current
- Torque
- Power
- References
- DC bus voltage
- Output voltage
- Heatsink temperature
- Operating hours
- Kilowatt hours

Fault memory

An inbuilt fault memory stores information relating to the latest 64 faults, each with a time stamp.

```
1 L-> 1242.0 RPM 1
2 LAST FAULT
OVERVOLTAGE
1121 H 1 MIN
```

Centralised control

One panel can control up to 31 drives.

```
-> -> <- ->
1 21 40 100
->
111
```

Easy programming

Parameters are organised into groups for easy programming.

```
1 L-> 1242.0 RPM 1
11 REFERENCE SELECT
3 EXT REF 1 SELECT
All
```

Control panel mounting platforms (+J410 and +J413)

On the reverse of the control panel are screw holes from where the control panel can be fixed to a cabinet door. Panel-mounting platforms, which allow the panel to be removed, are also available. There are two variants of the panel-mounting platform:

RPMP-11 (+J410) for door mounting

RPMP-21 (+J413) for panel mounting inside the cabinet



Options

Optional I/O

Standard I/O can be extended by using analog and digital extension modules or pulse encoder interface modules which are mounted in the slots on the ACS800 control board. The control board has two slots available for extension modules. More extension

modules can be added with the I/O extension adapter which has three slots. The available number and combination of I/O's depends on the control software used. The standard application software supports 2 analog and 2 digital extension modules.

Optional I/O

Analog I/O extension module RAIO-01 (+L500)

- 2 analog inputs: galvanically isolated from 24 V supply and ground
 - $\pm 0(2)\dots 10$ V, $0(4)\dots 20$ mA or $\pm 0\dots 2$ V, resolution 12 bits
- 2 analog outputs: galvanically isolated from 24 V supply and ground
 - $0(4)\dots 20$ mA, resolution 12 bit

Digital I/O extension module RDIO-01 (+L501)

- 3 digital inputs: individually galvanically isolated
 - Signal level 24 to 250 V or 115/230 V AC
- 2 relay (digital) outputs:
 - Switchover contact
 - 24 V or 115/230 V AC
 - Max. 2 A

Pulse encoder interface module RTAC-01 (+L502)

- 1 incremental encoder input:
 - Channels A, B and Z (zero pulse)
 - Signal level and power supply for the encoder is 24 or 15 V
 - Single ended or differential inputs
 - Maximum input frequency 200 kHz



I/O extension adapter AIMA-01

- Three slots for I/O extension modules
- Connection to the ACS800 control board through optic link
- Dimensions: $78 \times 325 \times 28$ mm
- Mounting: onto 35×7.5 mm DIN rail
- External power supply connection
- Supply voltage: 24 V DC $\pm 10\%$
- Current consumption: depends on connected I/O extension modules



Options

Fieldbus control

ABB industrial drives have connectivity to major automation systems. This is achieved with a dedicated gateway concept between the fieldbus systems and ABB drives.

The fieldbus gateway module can easily be mounted inside the drive. Because of the wide range of fieldbus gateways, your choice of automation system is independent of your decision to use first-class ABB AC drives.

Manufacturing flexibility

Drive control

The drive control word (16 bit) provides a wide variety of functions from start, stop and reset to ramp generator control. Typical setpoint values such as speed, torque and position can be transmitted to the drive with 15 bit accuracy.

Drive monitoring

A set of drive parameters and/or actual signals, such as torque, speed, position, current etc., can be selected for cyclic data transfer providing fast data for operators and the manufacturing process.

Drive diagnostics

Accurate and reliable diagnostic information can be obtained via the alarm, limit and fault words, reducing the drive downtime and therefore also the downtime of the manufacturing process.

Drive parameter handling

Total integration of the drives in the production process is achieved by single parameter read/write up to complete parameter set-up or download.



Reduced installation and engineering effort

Cabling

Substituting the large amount of conventional drive control cabling with a single twisted pair reduces costs and increases system reliability.

Design

The use of fieldbus control reduces engineering time at installation due to the modular structure of the hardware and software.

Commissioning and assembly

The modular machine configuration allows pre-commissioning of single machine sections and provides easy and fast assembly of the complete installation.

Currently available gateways

Fieldbus	Protocol	Device profile	Baud rate
PROFIBUS (+K454)	DP, DPV1	PROFIdrive ABB Drives *)	9.6 kbit/s - 12 Mbit/s
DeviceNet (+K451)	-	AC/DC drive ABB Drives *)	125 kbit/s - 500 kbit/s
CANopen (+K457)	-	Drives and motion control ABB Drives *)	10 kbit/s - 1 Mbit/s
ControlNet (+K462)	-	AC/DC drive ABB Drives *)	5 Mbit/s
Modbus (+K458)	RTU	ABB Drives *)	600 bit/s - 19.2 kbit/s
Ethernet (+K464)	Modbus/ TCP	ABB Drives *)	10 Mbit/s / 100 Mbit/s
InterBUS-S (+K453)	I/O, PCP	ABB Drives *)	500 kbit/s
LONWORKS® (+K452)	LONTALK®	Variable speed motor drive	78 kbit/s

*) Vendor specific profile



Options

Remote monitoring and diagnostics tool

Browser-based, user-friendly

The intelligent ethernet NETA-01 module gives simple access to the drive via the internet, communicating via a standard web browser. The user can set up a virtual monitoring room wherever there is a PC with an Internet connection or via a simple dial-up modem connection. This enables remote monitoring, configuration, diagnostics and, when needed, control. The drive can also provide process related information, such as load level, run time, energy consumption and I/O data, the bearing temperature of the driven machine, for instance.

This opens up new possibilities for the monitoring and maintenance of unmanned applications across a range of industries, for instance water, wind power, building services and oil & gas, as well as any application where the user needs access to the drives from more than one location. It also provides an opportunity for OEMs and system integrators to support their installed base globally.

No PC needed at local end

The intelligent ethernet module has an embedded server with the necessary software for the user interface, communication and data storage. This gives ease of access, realtime information and the possibility for two-way communication with the drive, enabling immediate response and actions, saving time and money. This is possible without using a PC at the local end, as required by other remote solutions.

Powerful and versatile

Up to nine drives can be connected to the intelligent ethernet module via fiber optic links. It is available as an option for new drives, as well as an upgrade for existing systems. Access to the module is secured by user ID and passwords.

It connects to the drive with fiber optic cables. The size of the module is 93 (h) x 35 (w) x 76.5 (d) mm.

The web page of the module is opened like any other web address. The home page shows a general overview of the system with traffic lights and action buttons to guide the user through the different sections.

Features

- Virtual monitoring room for
 - Monitoring
 - Configuration of parameters
 - Diagnostics
 - Control, if needed
- Browser-based access via
 - Intra-/extra-/internet or
 - Simple dial-up modem connection
- No PC needed at the local end
- Can be used as a Modbus/TCP bridge for process control.





Standard application software

Based on Direct Torque Control technology, the ACS800 offers highly advanced features as standard. The ACS800 standard application software provides solutions to virtually all AC drives applications.

Adaptive programming

In addition to parameters, industrial drives have the possibility for function block programming as standard. Adaptive programming with 15 programmable function blocks makes it possible to replace e.g. relays or even a PLC in some applications. Adaptive programming can be done either by standard control panel or DriveAP, a user-friendly PC tool.

The standard application macros

The ACS800 features inbuilt, pre-programmed application macros for configuration of such parameters as inputs, outputs and signal processing.

- **FACTORY SETTINGS** for basic industrial applications
- **HAND/AUTO CONTROL** for local and remote operation
- **PID CONTROL** for closed loop processes
- **SEQUENTIAL CONTROL** for repetitive cycles
- **TORQUE CONTROL** for processes where torque control is required
- **USER MACRO 1 & 2** for user's own parameter settings

Software features

A complete set of standard software features offers premium functionality and flexibility.

- Accurate speed control
- Accurate torque control without speed feedback
- Adaptive programming
- Automatic reset
- Automatic start
- Constant speeds
- Controlled torque at zero speed
- DC hold
- DC magnetizing
- Diagnostics

- Flux braking
- Flux optimization
- IR compensation
- Master/follower control
- Mechanical brake control
- Motor identification
- Parameter lock
- Power loss ride-through
- Process PID control
- Programmable I/O
- Scalar control
- Speed controller tuning
- Start-up assistant
- Support for sine filter in the drive output
- Trim function
- User-selectable acceleration and deceleration ramps
- User adjustable load supervision/limitation

Pre-programmed protection functions

A wide range of features provides protection for the drive, motor and the process.

- Ambient temperature
- DC overvoltage
- DC undervoltage
- Drive temperature
- Input phase loss
- Overcurrent
- Power limits
- Short circuit

Programmable protection functions

- Adjustable power limits
- Control signal supervision
- Critical frequencies lock-out
- Current and torque limits
- Earth fault protection
- External fault
- Motor phase loss
- Motor stall protection
- Motor thermal protection
- Motor underload protection
- Panel loss



ABB also provides a set of ready-made control solutions for specific industrial drive applications. Such software adds application-dedicated features and protection without an external PLC - improving productivity and reducing costs.

The main advantages of ABB's control solutions:

- Application-dedicated features
- Improved production
- No external PLC
- User-friendly
- Easy to use
- Energy savings
- Smooth power loss ridethrough
- Reduced costs
- Adaptive protection

Multiblock programming application

The multiblock programming application has been specially designed for system integrators and local engineering because of its easy programming, large number of I/O, master-follower link and fieldbus interfaces. Integrated into the drive control board are over 200 function blocks on 3 time levels: 20 ms, 100 ms and 500 ms. These benefits mean that it is not always necessary to have separate PLC for drive and process control.

An extension analog and digital I/O is typically installed on the AIMA-01 I/O module adapters. Three extension I/O modules can be installed on each I/O module adapter and an optical link connects the I/O modules to the drive control board.

Function blocks are easy to program using the DriveAP2 PC tool. For example, there are Profibus fieldbus blocks available to help users to understand the block programme connections between the drive and Profibus master. Block programme information, as well as text comments, symbolic names of block outputs and page header information is saved in the flash memory of the drive control board.

I/O Device	Digital Inputs	Digital Outputs	Analog Inputs	Analog Outputs	Pulse Encoders
RMIO Basic I/O	7	3	3	2	
RDIO DI/O EXT1	3	2			
RDIO DI/O EXT2	3	2			
RDIO DI/O EXT3	3	2			
RDIO DI/O EXT4	3	2			
RDIO DI/O EXT5	3	2			
RAIO AI/O EXT1			2	2	
RAIO AI/O EXT2			2	2	
RAIO AI/O EXT3			2	2	
RAIO AI/O EXT4			2	2	
RAIO AI/O EXT5			2	2	
RTAC Pulse Encoder					ENCODER 1
NTAC-02 Pulse Encoder					ENCODER 1 ENCODER 2
Total	22	13	13	12	2 Encoders



System application

The software is targeted for multi-motor machines producing or processing metal, paper, plastics, textile, rubber, cement, and for numerous other demanding applications. The basic control modes are speed control and torque control. Fast communication with the overriding controller can exchange operative data (references, command words) and support data (configuration data, diagnostics). Proprietary (DDCS, Drive bus) and generic (PROFIBUS, InterBus, DeviceNet) protocols enable linking of drives to controllers, PLC and PCs.

The major features are the soft changeover between the speed and torque control modes, drooping in speed control, fast master-follower link between two or more drives and inertia compensation.

Benefits with system application

- Extended communication capability, 24 data words available for both directions between the drive and overriding system.
- Torsional oscillation damping function to damp mechanical oscillations.
- PT100 or PTC measurement (max. 2 motors)
- Thermal model for motor cable protection
- Motor fan control with diagnostics
- Freely programmable outputs: analog (max. 4) and digital (max. 5)
- Speed control gain as a function of output on low speed or as a function of motor frequency

Centrifuge control

Practical programmable sequences for conventional centrifuges. Integrated decanter control for the accurate speed difference control of two shafts, where direct communication via the fibre optic link between bowl and scroll is used.

Extruder control

High starting torque, accurate speed/torque control without an encoder for demanding extruder applications. The extruder screw and other delicate mechanical parts can be protected against overload.

Pump and fan control

Better flow control and cost savings for up to 5 parallel motors in various industrial pump and fan applications. Featuring many important PFC functions, including sleep/ wake up and autochange etc.

Crane drive control

Cost-effective crane drive control with optimal operational safety and outstanding performance already built in.

- Easy installation and start-up reduces the total project costs
- Ready to use with proven modular crane functionality
- Accurate and fast torque response increases the operational productivity
- Smooth crane operation reduces maintenance and damage costs
- Available as single drive and multi-drive with dynamic and regenerative braking

Standard ready-to-use crane drive solution with optimal operational safety and outstanding crane drive performance.

Master/follower control

Reliable control via the fibre optic link of several drives when motor shafts are coupled together. Thanks to master/follower function the load can be evenly distributed between the drives.



Dimensioning tool

DriveSize

Dimensioning

DriveSize is a PC program for helping the user to select the optimal motor, frequency converter and transformer, especially in those cases where a straightforward selection from a catalogue is not possible. Additionally it can be used to compute currents, network harmonics and to create documents about the dimensioning based on actual load. DriveSize contains the current versions of the ABB motor and frequency converter catalogues.

The default values make DriveSize simple to use, but the user is provided with ample options for drive selection. The shortcut keys make drive selection easy while giving the optimal dimensioning result. A manual selection mode is also supported.

DriveSize is currently used by more than 1,000 engineers globally.

DriveSize is for drive system components

- 3-phase standard, customized, Ex and user defined motors
- ABB low voltage AC drives
- Transformers

DriveSize features

- Selects the optimal motor, drive unit, supply unit and transformer
- Calculates network harmonics for a single supply unit or for the whole system
- Allows importation of own motor database
- Supplies dimensioning results in graphical and numerical format
- Prints and saves the results

The DriveSize PC program can be downloaded from www.abb.com/motors&drives

- ➔ Drives
- ➔ Drive PC Tools
- ➔ DriveSize

The screenshot shows the ABB website interface. At the top, there is a navigation bar with links for 'About ABB', 'Products & Services', 'Sustainability', 'News Center', 'Technology', 'Careers', and 'Investor Relations'. Below this is a secondary navigation bar with 'ABB Product Guide', 'Systems and Industry Solutions', 'ABB Service Guide', 'Contact Directory', 'Industrial IT', and 'Supplying to ABB'. The main content area features a breadcrumb trail: 'Product Guide > Motors, Drives and Power electronics > Drives > PC tools > EngineeringDriveSize'. The page title is 'DriveSize'. The main text describes DriveSize as a PC program for selecting optimal motor, frequency converter, and transformer, and for computing network harmonics. It also provides information on supported operating systems (Win98, WinNT, Win2000, WinXP) and lists the parts covered by the software. A search bar and a 'CONTACT US' form are visible on the right side of the page.



Programming tool

DriveAP

Programming tool

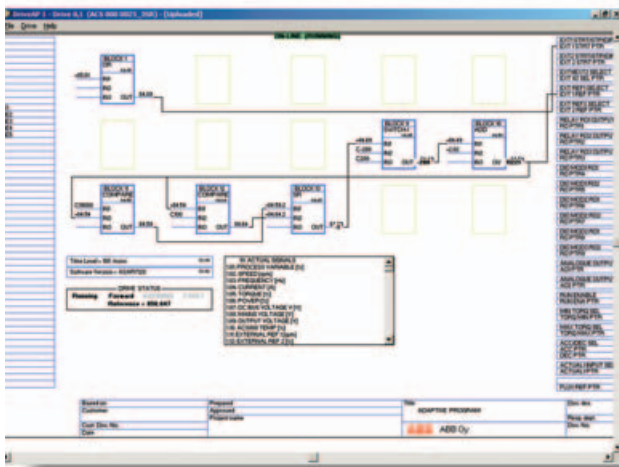
DriveAP is a PC software tool for creating, documenting, editing and downloading adaptive programs and multiblock programming programs. DriveAP 1.1 supports adaptive programming, whereas DriveAP 2 supports both adaptive programming and multiblock programming applications. The adaptive programming contains 15 function blocks and is available in a standard application. The multiblock programming application contains over 200 function blocks, and also includes PROFIBUS fieldbus and drive I/O blocks. DriveAP offers a clear and easy way to develop, test and document these programs with a PC.

It is a user-friendly tool for modifying function blocks and their connections. No special programming skills are required, a basic knowledge about block programming is enough. DriveAP supports IEC61131.

The adaptive programs are easy to document as hard copies or store as PC files. The multiblock programming with all related information is saved directly to the drive.

Upload or download

Both program types can be uploaded from connected drives and displayed graphically on a PC screen for



DriveAP with adaptive program of standard application.

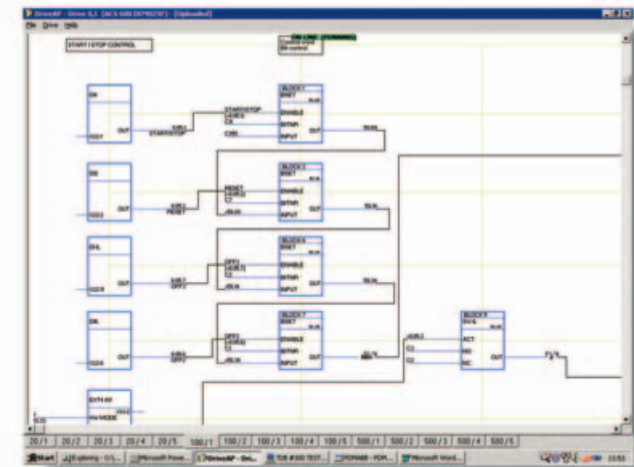
service or documentation purposes, for example. The adaptive programs and multiblock programming programs made off-line can be downloaded to any of the connected drives that support corresponding programs.

Three operating modes

- Stand-alone mode - DriveAP is not connected to a drive. The adaptive programming and multiblock programming can be carried out in the office, for example, and later downloaded to a drive.
- Off-line mode - DriveAP is connected to a drive. The adaptive programming and multiblock programming can be carried out in batch mode.
- On-line mode - DriveAP is connected to a drive. Changes to the adaptive programs and multiblock programs are written immediately to the drive and actual values are shown on the screen in real-time.

DriveAP features

- Easy-to-use tool, no special skills required
- Create and download new programs
- Document programs
- Upload existing programs from the drive
- Operating modes
 - Stand-alone
 - Off-Line
 - On-Line



DriveAP with multiblock programming application.



Start-up and maintenance tool

DriveWindow 2

Start-up and maintenance tool

ABB's DriveWindow is an advanced, easy-to-use PC software tool for the start-up and maintenance of ABB industrial drives. Its host of features and clear, graphical presentation of the operation make it a valuable addition to your system, providing information necessary for troubleshooting, maintenance and service, as well as training.

With DriveWindow the user is able to follow the operation of several drives simultaneously by collecting the actual values from the drives onto a single screen or printout.

Additionally, the client part of DriveWindow may reside on one intranet PC, and the server on another PC closer to the drives. This enables easy plant-wide monitoring with two PCs.

High speed communication

DriveWindow uses a high-speed fibre optic cable network with DDCS communication protocol. This enables very fast communication between PC and drives. The fibre optic network is safe and highly immune to external disturbance. A fibre optic communication card inside the computer is needed.

Monitoring drives

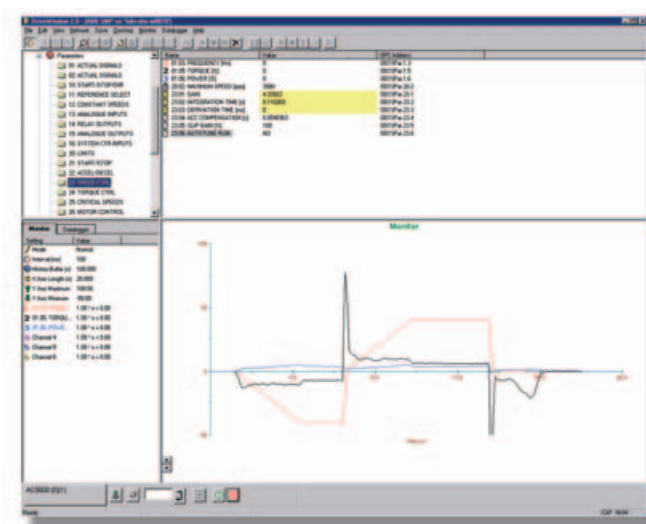
With DriveWindow you can monitor several drives simultaneously. The history buffer makes it possible to record a large amount of data in the PC's memory. The drive's data logger can be accessed with DriveWindow and viewed in graphical form. The fault logger inside the drive automatically documents every fault, warning and event which occurs. The fault history stored in the drive can be uploaded to your computer.

Versatile back-up functions

Drive parameters can be saved to the PC with DriveWindow, and can easily be downloaded back to the drive whenever needed. The same goes for the software. DriveWindow allows the entire control board software to be saved and restored later, if needed. This makes it possible to use one control board as a spare part for many different sizes of drives.

DriveWindow 2 features

- Easy-to-use tool for commissioning and maintenance
- Several drives connected and monitored at the same time
- Monitor, edit or save signals and parameters, clear graphical presentation
- High speed communication between PC and drive
- Versatile back-up functions
- View data collected and stored in the drive
- Fault diagnostics; DriveWindow indicates the status of drives, and also reads fault history data from the drive



Integration tool

DriveOPC



Integration tool

DriveOPC is a software package which allows OLE for Process Control (OPC) communication between Windows applications and ABB industrial drives. It allows Object Linking and Embedding (OLE) for Process Control (OPC) communication. This OPC server is an ideal tool for integrating ABB industrial drives and commercial PC software, and creating PC based control and monitoring systems.

Remote monitoring

DriveOPC enables remote connection over LAN (local area networks). The remote PC can be connected through its IP address (e.g. "164.12.43.33") or by the DNS name (e.g. "Gitas213").

OPC based software

OPC is an industry standard created in cooperation with Microsoft. It is an open architecture interface design, managed by the international OPC foundation. OPC is meant for different kinds of factory automation. DriveOPC is based on the OPC foundation data access standard 1.0A and Microsoft COM/DCOM technology. DriveOPC has full access to all drives, even when remote connection over LAN is used.

High speed communication

DriveOPC uses a high-speed fibre optic cable network with DDCS communication protocol. This makes communication between PC and drives very fast. The fibre optic network is safe and highly immune to external disturbance. A fibre optic communication card inside the computer is needed.

DriveOPC features

DriveOPC supports OPC's data access 1.0A.

Read access to:

- Drive status: local, running, direction, fault, warning, reference
- Signals and parameters
- Fault logger contents
- Event logger contents
- General drive information
- Data logger settings, status and contents

Write access to:

- Drive control: local, start, stop, forward, reverse, coast stop, reset fault, home, teach-in, contactor on/off, reference
- Parameters
- Fault logger clear
- Data logger init, start, trig, clear



Summary of features and options



	Ordering Code	107 inverters	207 (ISU) regenerative supply unit	307 and 507 (6 p & 12 p DSU supply units)	407 & 807 (6 p & 12 p TSU supply units)
		Frame sizes R2i - 12'R8i	Frame sizes R7i - 12'R8i	Frame sizes D3 - 5'D4	Frame sizes B4-B5
Power and voltage range		400 V: 1.1 - 2400 kW 500 V: 1.5 - 2900 kW 690 V: 5.5 - 5600 kW	400 V: 78 - 2555 kW 500 V: 72 - 2932 kW 690 V: 58 - 5395 kW	400 V: 147 - 2436 kW 500 V: 183 - 3045 kW 690 V: 253 - 4202 kW	400 V: 468 - 3076 kW 500 V: 580 - 4381 kW 690 V: 574 - 5991 kW
Mounting					
Free-standing		●	●	●	
Cabling					
Supply bottom entry	H350	-	●	●	●
Supply top entry	H351	-	□	□	□
Inverter bottom exit	H352	●	-	-	-
Inverter top exit	H353	□	-	-	-
Degree of protection					
IP21 (UL type 1)		●	●	●	●
IP22 (UL type 1)	B053	□	□	□	□
IP42 (UL type 1)	B054	□	□	□	□
IP54 (UL type 12)	B055	□	□	□	□
IPXXR air outlet duct connection	C130	□	□	□	□
IP54 (UL type 12)	B056	-	-	-	-
Motor control					
DTC		●	●	-	-
Software					
Start-up assistant		● 1)	-	-	-
Adaptive programming with Drive AP2		● 1)	-	-	-
Multiblock programming application		●	-	-	-
Reduced run (redundancy) for parallel connected inverters		●	-	-	-
Optional software optimised for different applications or for enhanced programmability: for more details see section "Application software and programming"		□	-	-	-
Control panel					
Alphanumeric 4*20 character control panel	J400	□	□	-	-
Control panel mounting platform	J410 or J413	□	□	-	-
LED monitoring display LMD	J401	□	□	-	-
Control connections (I/O) and communications					
3 pcs analogue inputs, programmable, galvanically isolated		●	● 2)	● 2)	● 2)
2 pcs analogue outputs, programmable		●	● 2)	● 2)	● 2)
7 pcs digital inputs, programmable, galvanically isolated - can be divided into two groups		●	● 2)	● 2)	● 2)
3 pcs relay outputs, programmable		●	● 2)	● 2)	● 2)
UPS external control voltage	G307	□	□	□	□
Inbuilt I/O extension and speed feedback modules: for more details see section "control connections and communications"		□	-	-	-
Adapters for several fieldbuses: for more details see section "Control connections and communications"		□	□	-	-

Summary of features and options



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EMC filters					
EMC 1 st environment (Category C2)	E202	-	□ 3)	□ 3)	-
EMC 2 nd environment (Category C3) (can be used also in IT-networks)	E210	-	●	●	-
Line filter					
AC or DC choke and filter		-	-	● 4)	● 5)
LCL			●		
Output filters					
Common mode filter	E208	● 6)	● 6)	-	-
du/dt filter	E205	● 7)	-	-	-
Braking (see braking unit table)					
Brake chopper in DC bus	D150	-	-	-	
Brake resistor in DC bus	D151	-	-	-	
Regenerative braking		-	●	-	●
Incoming unit apparatus					
Disconnecter and contactor for single supply units	F253 F250	-	● 8)	● 8)	
Air circuit braker	F255	-	● 9)	● 9)	●
Drive units					
DC switch	F266	□			
Safety options					
Prevention of unexpected start-up	Q950	□	-	-	-
Earth fault monitoring, earthed network	Q953	●	●	●	□
Earth fault monitoring, unearthed mains	Q954	-	□	□	-
Approvals					
CE		□ 10)	□ 10)	□ 10)	□ 10)
UL, cUL, CSA		□ 10)	□ 10)	□ 10)	□ 10)
GOST R		□ 10)	□ 10)	□ 10)	□ 10)
C-Tick		pending	pending	pending	pending

- Standard
- Option with ordering code
- Not available

- 1) Only in standard application software
- 2) Fixed I/O in ISU, DSU and TSU
- 3) Option for nxR8i and D4 6-pulse only, 400V/500V max 1000A, only in grounded networks
- 4) In AC side
- 5) In DC side
- 6) Standard only in frame sizes R7i-12xR8i
- 7) Optional in frame sizes R2i-R8i and 400V/500V
- 8) Frame sizes R7i and 1xR8i, D3, 1xD4
- 9) Frame sizes ≥ 2xR8i and ≥ 2xD4 (DSU 12 p contactor 2xD4)
- 10) Partly available please check with local ABB representative



Global service network

ABB provides professional spare part, maintenance and repair services using its own authorized and certified service personnel as well as the personnel of the ABB channel partners all over the world.

Note: Though all services are available globally, local services may vary.

For more information on our ACS800 services and service network, please contact your local ABB representative or visit our website: <http://www.abb.com/motors&drives>.

Productized services

ABB's drive lifecycle management model provides customers with the maximum profit for their purchased assets by maintaining high availability, eliminating unplanned repair costs and extending drive lifetime. The lifecycle management model comprises a palette of dedicated services for the entire lifecycle of ACS800 drives.

Start-up services

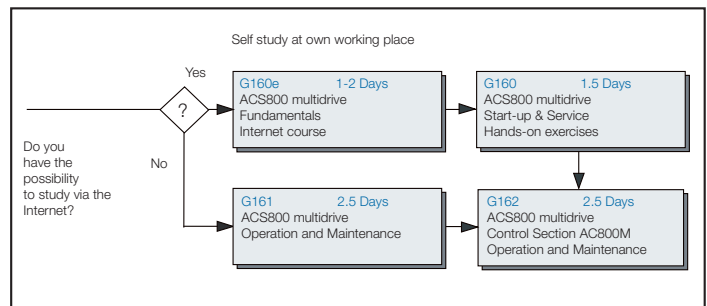
Using ABB's start-up services you can trust that your drives are correctly commissioned and tuned to their application. ABB global service network personnel are authorized professionals who are thoroughly trained for their job.

Training services

ABB offers dedicated training on ABB drives for your service and operating personnel. Upon successful completion of the training course your personnel will have acquired the skills to use ABB drives correctly and safely, and also to get the best results from their application. The Internet-based training course is broken down into modules that allow for customization of the contents depending on the objectives and skill levels of the participants.

Service product code	Service type	Description
G160e	ACS800 MD, G160e	Internet-based training
G160	ACS800 MD, G160	Startup & Service Hands-on

ACS800 multidrive training courses



For more information on our training services, please contact your local ABB representative or visit the ABB University website: <http://www.abb.com/abbuniversity>.

Contact and web information

www.abb.com/motors&drives



ABB's worldwide presence is built on strong local companies working together with the local distributor and channel partner network across borders to achieve a uniform level of services for all our customers. By combining the experience and know-how gained in local and global markets, we ensure that our customers

in all industries can gain the full benefit from our products.

For further details about all our variable speed drive products and services please contact your nearest ABB office or visit the ABB website www.abb.com/motors&drives.

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Fax: +61 3 8544 0004

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Fax: +994 12 493 73 56

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Fax: +973 725 332

Bangladesh (Dhaka)
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Fax: +88 02 8850906

Belarus (Minsk)
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Fax: +375 228 12 43

Belgium (Zaventem)
Tel: +32 2 718 6313
Fax: +32 2 718 6664

Bolivia (La Paz)
Tel: +591 2 278 8181
Fax: +591 2 278 8184

Bosnia Herzegovina (Tuzla)
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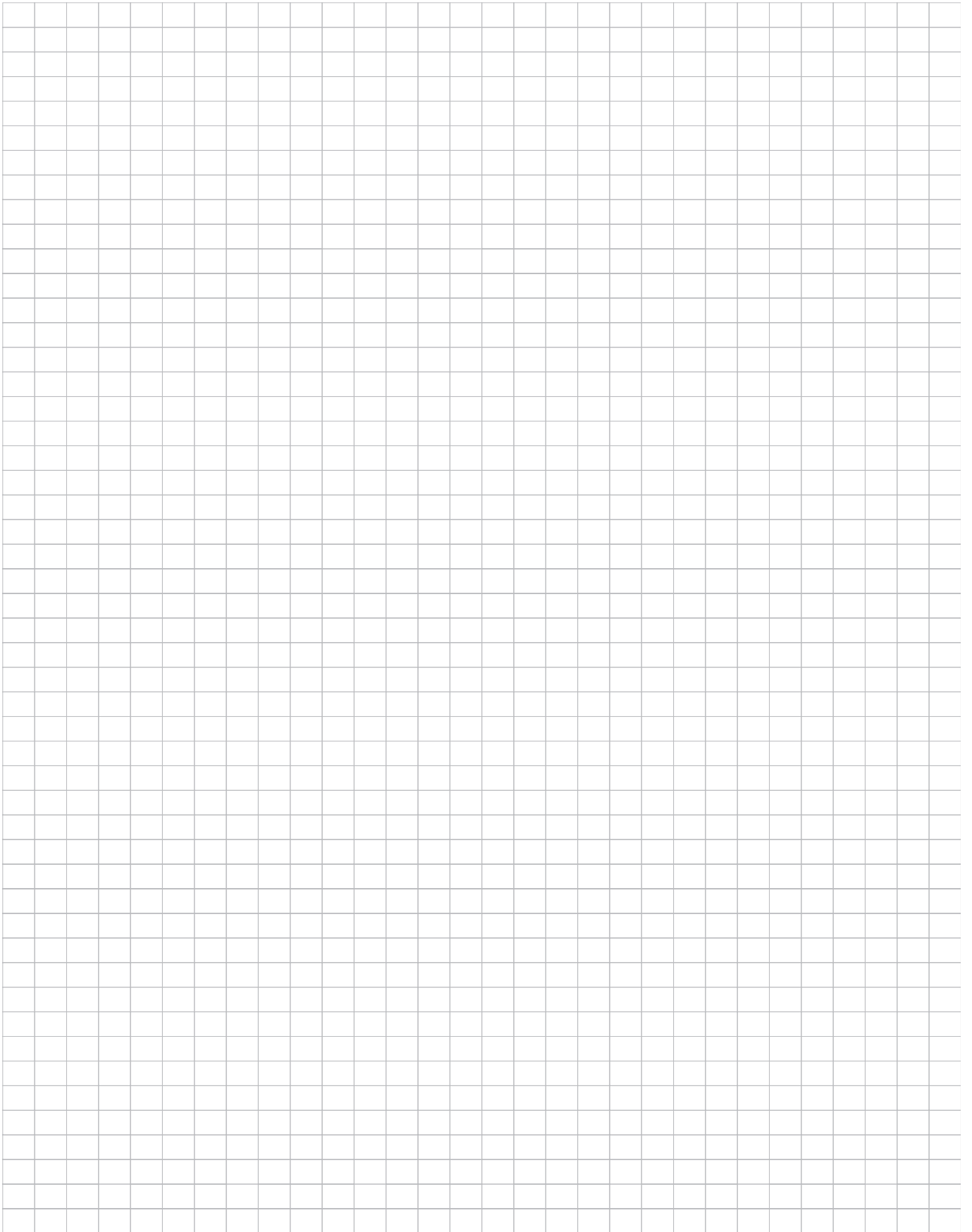




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