Drive^{IT} Low Voltage AC Drives

ACS 800 Catalogue
Related tools and accessories


Industrial IT
DTC
DIRECT TORQUE CONTROL

Drive^{IT} Low Voltage AC Drives
ACS 800

ABB
ABB is one of the largest technology companies in the world with broad industry knowledge and geographic scope. It has around 160,000 employees in more than 100 countries and occupies a leading position (1, 2 or 3) in each industry and product areas we serve.

ABB offers complete industry and process specific solutions, from products to turnkey projects in utilities, oil, gas and petrochemicals, manufacturing and consumer industries, and process industries. ABB offers world-class collaborative business platforms and solutions based on Industrial^{IT} open architecture software as well as a full range of financing solutions for ABB's industrial businesses and third party customers.

Industrial^{IT} for drives
As a key element of its business strategy, ABB has committed to a broad program of product development and positioning under the Industrial IT umbrella. This initiative is geared towards increasing standardization of ABB products as the "building blocks" of larger solutions, while building in functionality that will allow multiple products to interact seamlessly as components of real-time automation and information systems.

At the product level ABB's Industrial IT architecture ensures that ABB products can interoperate perfectly. Only products that satisfy a complete list of requirements stipulated by Industrial IT are certified to bear the Industrial IT enabled symbol, a special mark that indicates that the product can be easily integrated into the Industrial IT architecture, in a "plug & produce" manner.

Standardization and an architecture based on open standards increase engineering efficiency, speed of implementation and quality. The final result is higher productivity and more output from your plant. Through versatile connectivity the drives made by ABB can be easily integrated with different process automation systems fulfilling the requirements of Industrial IT.

Our Drive^{IT} drive products provide the performance, energy savings and life extension that the customers have come to expect from ABB.

AC Drives
AC Drives are used to control the speed and torque of a standard induction motor, the workhorse of the industry. ABB is a market leader in both motors and drives worldwide.

AC drive technology extends the motor speed range from zero to high above the rated speed, increasing the productivity of the driven process. When a low capacity is enough, the drive reduces the machine speed and saves energy.

Accurate speed control of the manufacturing process optimizes the quality of the end product. The Direct Torque Control (DTC) developed by ABB has improved control accuracy by making speed encoders unnecessary.

Drive^{IT} Low Voltage AC Drives

ACS 800

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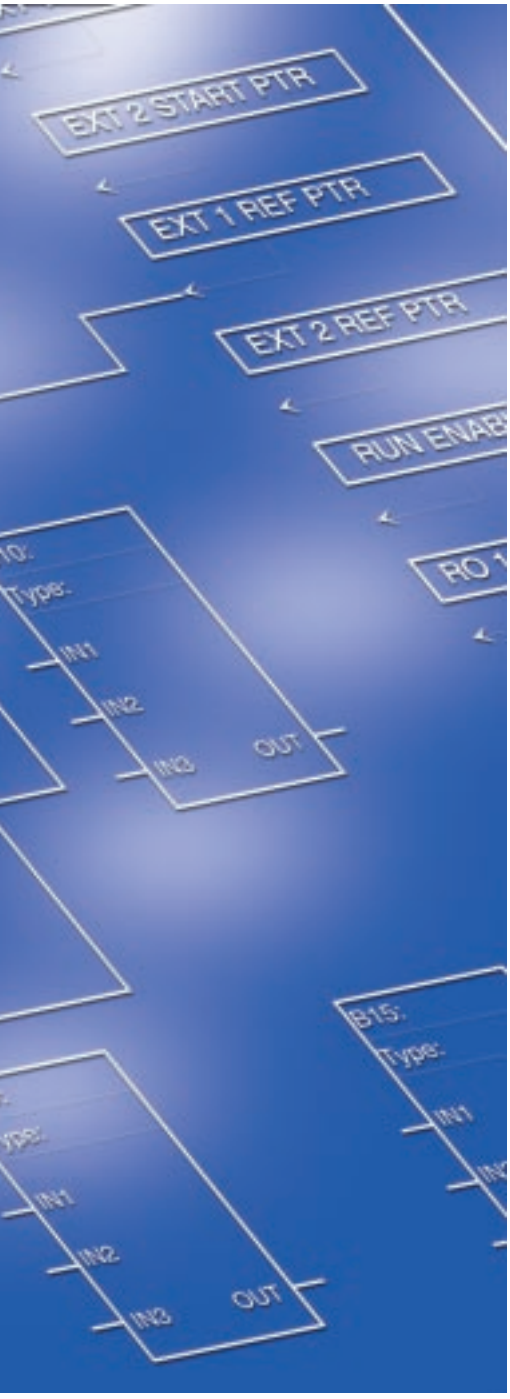


ACS 800

for 1.1 to 500 kW AC motors, compact and complete.

Common technology for different applications

One of the main benefits of the ACS 800 series is a wide range of drive products with common technologies like Start-up Assistant, Adaptive Programming and DTC, common features, common user and process interface with fieldbuses, common software tools for sizing, commissioning and maintenance, common spare parts.

Premium Technology - DTC

The heart of the ACS 800 is DTC - Direct Torque Control, its first class motor control system. The consistently excellent performance of the ACS 800 guarantees that the drive is not the limiting factor in your process.

DTC technology is well proven in various applications and demanding environments guaranteeing the high reliability of the drive.

Start-up Assistant

The ABB AC Drives have always been top of their class in user-friendliness. The new product series brings a whole new meaning to "user-friendliness". Thanks to the Start-up Assistant, the commissioning and tuning of a high performance drive could not be easier.

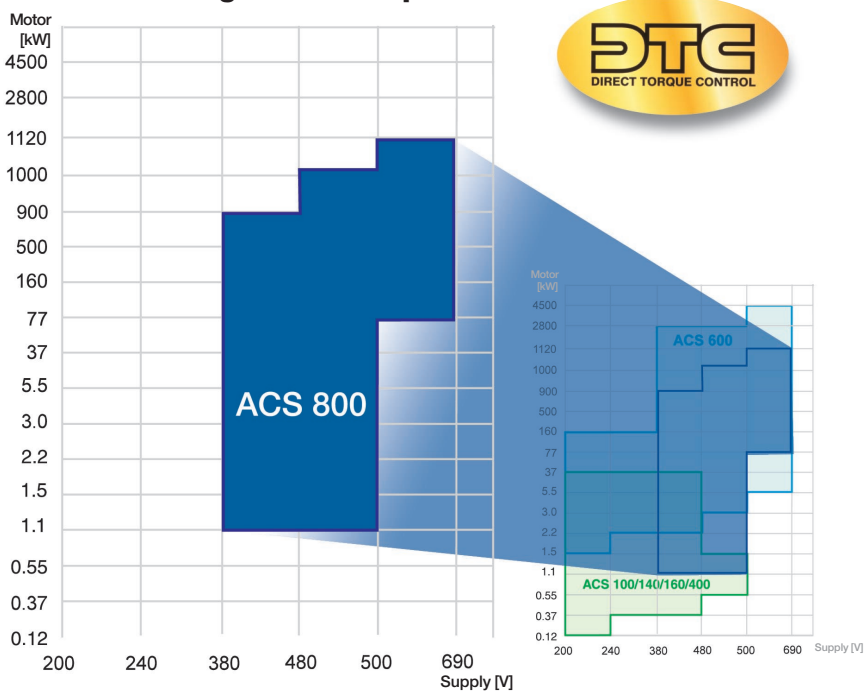
Adaptive Programming

The ACS 800 goes one step further compared to normal parameter programming with the addition of Adaptive Programming. It is like having a small PLC inside your drive. Adaptive Programming needs no additional hardware or software but is always there when needed.

Integration and Compact Design

Anything that is required from an AC drive, like EMC filters or chokes, is inside the drive, so no extra space or cabling is needed. Furthermore, there is always space inside the ACS 800 for three option modules for I/O extensions, fieldbuses, pulse encoder interface or a PC connection.

ABB Low voltage AC Drive products



Environmentally sound products

ABB is a signatory to the ICC (International Chamber of Commerce) Business Charter for Sustainable Development and is working towards fulfilling its requirements. ABB AC Drives follow all 16 ICC principles and the basic function of variable speed drives is to minimize the environmental impact by matching the speed of the driven machine to the actual need in the process. This often means that the environmental load reduction in the process is ten times more than the environmental load caused by the manufacture, transport and disposal of the drives.

The manufacturing of AC Drives complies with ISO 14001 standards.

Technical specifications for the ACS800-01/-02/-04

Mains connection

3-Phase supply voltage:	U_{3IN} = 380…415 V ± 10% U_{5IN} = 380…500 V ± 10%
Frequency:	48...63 Hz
Power factor:	$\cos\varphi_1$ = 0.98 (fundamental) $\cos\varphi$ = 0.93...0.95 (total)

Efficiency

At nominal power:	98%

Motor connection

3-Phase output voltage:	0...U_{3IN}/U_{5IN}
Frequency control:	0...±300 Hz 0...±120 Hz 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	±4% with nominal torque
Closed loop	±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

Enclosure

Paint color:	Light beige NCS 1502-Y (RAL 90021/PMS 420C)

Environmental limits

Ambient temperature:	
Transportation:	-40...+70°C
Storage:	-40...+70°C
Operation:	-15...+50°C, no frost allowed 40...50°C at reduced output power (1%/1°C). Exception: $I_{contmax}$ rating is not available in continuous operation in ACS800-01 above 40°C.
Relative humidity	5 to 95%, no condensation allowed.
Cooling method:	Dry clean air
Altitude:	0...1000 m without derating 1000...4000 m with derating

ACS 800 Wall-mounted single drive

ACS800-01, 1.1 to 110 kW

ACS 800 Free standing single drive

ACS800-02, 90 to 500 kW

Compact and Complete single drives

ACS800-01 and -02 single drives offer you all that you need. They are available in IP 21, IP 54 or IP 55 degrees of protection. The drives up to 110 kW are compact, wall-mounted ACS800-01 drives and from 90 kW up to 500 kW book-shelf-style ACS800-02 drives with a new innovative free-standing enclosure. The difference between the ACS800-01 and the ACS800-02 is the mechanical construction - otherwise the drives are similar.

Fits anywhere

Both ACS800-01 and ACS800-02 drives are extremely compact without sacrificing user-friendliness.

The ACS800-02 has a unique, extremely compact bookshelf design. When using bookshelf mounting, even side-by-side installation is possible. In addition to bookshelf mounting, the ACS800-02 offers a possibility for flat type mounting enabling you to optimise the width or depth depending on your needs.

Everything inside

From the smallest ACS800-01 to the biggest ACS800-02 there is an extensive selection of in-built features and accessories. The standard features include a choke for harmonic filtering and drive protection, extensive and flexible I/O, user-friendly control panel with a Start-up Assistant feature, a silent long-lifetime cooling fan and cable terminals big enough even for aluminium cables.

If you need even more I/O than as standard, you can have it without having to play with external extension modules. Inside the drive there is place for up to three plug-in type option modules. There are also several other accessories that fit inside the drive. By adding an additional enclosure extension to the ACS800-02, you can extend the selection of accessories even more.

Accessories for the ACS800-01 and -02:

- Brake chopper
- EMC filter / two alternatives:
  - EN 61800-3, 2nd environment, unrestricted distribution
  - EN 61800-3, 1st environment, restricted distribution
- Analogue and digital I/O extension modules
- Fieldbus modules
- Pulse encoder interface module

Accessories for the ACS800-02:

- Common mode filters for motor protection

Accessories requiring enclosure extension:

- Fuse switch
- Contactor with emergency stop pushbutton
- 1 or 2 thermistor relays
- 3 Pt100 relays
- Cable top entry and exit
- Customer terminal block

In addition several external accessories available like dt/du filter, brake resistor.

Type	Nominal ratings		No-overload use	Light-overload use		Heavy-duty use			Noise level	Cooling air flow requirements: Heat dissipation	Cooling air flow requirements: Air flow
	$I_{cont.max}$ A	I_{MAX} A	$P_{cont.max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	Frame size	dBA	W	m³/h
Three phase supply voltage 380, 400 or 415 V. The power ratings are valid at nominal voltage (400 V)											
ACS800-01-0003-3	5.1	6.5	1.5	4.7	1.5	3.4	1.1	R2	62	100	35
ACS800-01-0004-3	6.5	8.2	2.2	5.9	2.2	4.3	1.5	R2	62	120	35
ACS800-01-0005-3	8.5	10.8	3	7.7	3	5.7	2.2	R2	62	140	35
ACS800-01-0006-3	10.9	13.8	4	10.2	4	7.5	3	R2	62	160	35
ACS800-01-0009-3	13.9	17.6	5.5	12.7	5.5	9.3	4	R2	62	200	35
ACS800-01-0011-3	19	24	7.5	18	7.5	14	5.5	R3	62	250	69
ACS800-01-0016-3	25	32	11	24	11	19	7.5	R3	62	340	69
ACS800-01-0020-3	34	46	15	31	15	23	11	R3	62	440	69
ACS800-01-0025-3	44	62	22	41	18.5	32	15	R4	62	530	103
ACS800-01-0030-3	55	72	30	50	22	37	18.5	R4	62	610	103
ACS800-01-0040-3	72	86	37	69	30	49	22	R5	65	810	168
ACS800-01-0050-3	86	112	45	80	37	60	30	R5	65	990	168
ACS800-01-0060-3	103	138	55	94	45	69	37	R5	65	1190	168
ACS800-01-0070-3	141	164	75	132	55	97	45	R6	65	1440	405
ACS800-01-0100-3	166	202	90	155	75	115	55	R6	65	1940	405
ACS800-01-0120-3	202	282	110	184	90	141	75	R6	65	2310	405
ACS800-02-0140-3	206	326	110	202	110	163	90	R7	71	3100	612
ACS800-02-0170-3	245	404	132	240	132	202	110	R7	71	3650	612
ACS800-02-0210-3	289	432	160	284	160	240	132	R7	71	4250	612
ACS800-02-0260-3	368	568	200	361	200	284	160	R8	72	4900	1220
ACS800-02-0320-3	487	720	250	477	250	361	200	R8	72	6150	1220
ACS800-02-0400-3	602	904	315	590	315	477	250	R8	72	7250	1220
ACS800-02-0440-3	648	1017	355	635	355	590	315	R8	72	7900	1220
ACS800-02-0490-3	718	1017	400	704	400	635	355	R8	72	9250	1220

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. Note: max. motor shaft power is 150% P_{hd}.

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 ACS 800 must be higher than or equal to the rated motor current to achieve the rated motor power given in the table.

Type	Nominal ratings		No-overload use	Light-overload use		Heavy-duty use			Noise level	Cooling air flow requirements: Heat dissipation	Cooling air flow requirements: Air flow
	$I_{cont.max}$ A	I_{MAX} A	$P_{cont.max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	Frame size	dBA	W	m³/h
Three phase supply voltage 380, 400, 415, 440, 460, 480 or 500 V. The power ratings are valid at nominal voltage (500 V)											
ACS800-01-0004-5	4.9	6.5	2.2	4.5	2.2	3.4	1.5	R2	62	120	35
ACS800-01-0005-5	6.2	8.2	3	5.6	3	4.2	2.2	R2	62	140	35
ACS800-01-0006-5	8.1	10.8	4	7.7	4	5.6	3	R2	62	160	35
ACS800-01-0009-5	10.5	13.8	5.5	10	5.5	7.5	4	R2	62	200	35
ACS800-01-0011-5	13.2	17.6	7.5	12	7.5	9.2	5.5	R2	62	250	35
ACS800-01-0016-5	19	24	11	18	11	13	7.5	R3	62	340	69
ACS800-01-0020-5	25	32	15	23	15	18	11	R3	62	440	69
ACS800-01-0025-5	34	46	18.5	31	18.5	23	15	R3	62	530	69
ACS800-01-0030-5	42	62	22	39	22	32	18.5	R4	62	610	103
ACS800-01-0040-5	48	72	30	44	30	36	22	R4	62	810	103
ACS800-01-0050-5	65	86	37	61	37	50	30	R5	65	990	168
ACS800-01-0060-5	79	112	45	75	45	60	37	R5	65	1190	168
ACS800-01-0070-5	96	138	55	88	55	69	45	R5	65	1440	168
ACS800-01-0100-5	124	164	75	115	75	88	55	R6	65	1940	405
ACS800-01-0120-5	157	202	90	145	90	113	75	R6	65	2310	405
ACS800-01-0140-5	180	282	110	163	110	141	90	R6	65	2810	405
ACS800-02-0170-5	196	326	132	192	132	162	110	R7	71	3150	540
ACS800-02-0210-5	245	404	160	240	160	192	132	R7	71	3550	540
ACS800-02-0260-5	289	432	200	284	200	224	160	R7	71	4600	540
ACS800-02-0320-5	368	568	250	361	250	284	200	R8	72	5350	1220
ACS800-02-0400-5	486	720	315	477	315	361	250	R8	72	6650	1220
ACS800-02-0440-5	526	904	355	515	355	477	315	R8	72	6800	1220
ACS800-02-0490-5	602	1017	400	590	400	515	355	R8	72	7250	1220
ACS800-02-0550-5	645	1017	450	632	450	590	400	R8	72	8900	1220
ACS800-02-0610-5	718	1017	500	704	500	632	450	R8	72	10050	1220

Enclosure

Degree of Protection:
IP 21 (Standard)
IP 54 (Optional for ACS800-02, available later)
IP 55 (Optional) for ACS800-01

Type	IP 21							IP 54 / IP 55			
	H1 mm	H2 mm	W1 mm	W2 mm	Depth mm	Weight kg	Weight with enclosure extension *) kg	H1 mm	W1 mm	Depth mm	Weight kg
R2	405	370 4)	165	N/A	226	9	N/A	528	263	242	16
R3	471	420 4)	173	N/A	265	12	N/A	528	263	273	18
R4	606	490 4)	240	N/A	274	26	N/A	771	377	278	32
R5	739	602 4)	265	N/A	286	37	N/A	771	377	308	50
R6	880	700 4)	300	N/A	400	67	N/A	922	420	427	77
R7	1507	N/A	250 1)	602	520 1) 2)	100	195	3)	3)	3)	3)
R8	2024	N/A	347 1)	793	617 1) 2)	230	375	3)	3)	3)	3)

*) Weights are for the basic configuration with switch fuse, but without contactor and other options.

H1 = Height with cable connection box
H2 = Height without cable connection box
W1 = Width of the standard unit
W2 = Width with enclosure extension
N/A = not available
1) The dimensions apply to bookshelf mounting. In flat type mounting the width and depth change places.
2) With enclosure extension the depth is increased by 25 mm due to the switch fuse handle.
3) Available later.
4) ACS800-01 without cable connection box does not fulfill IP 21 requirements.

ACS 800 4-Quadrant Drive

Air cooled regenerative drive. ACS800-17, 75 to 1120 kW

Complete 4-Quadrant Drive

The high performance ACS800-17 4-Quadrant drive allows full power flow in motoring and generating. Transition between modes is fast due to the ultrafast DTC control method. Stepping from Pn to -Pn or vice versa takes only few milliseconds. No dead time in transition is needed. The drive gives full output voltage and even more. Output voltage can be boosted, which means that 100% output voltage is available even when the input voltage is 90%.

Friendly but robust power line

Power companies set limits for the permissible harmonic content of current and voltage in order to prevent damage to equipment in the same environment. The ACS800-17 removes low order harmonics with line converter DTC control and high order harmonics with an LCL filter. The result is very clean power for 6, 12, 18 and 24 pulse rectifier solutions. The ultrafast DTC can even compensate for fast variations in line voltage. There is no risk of component damage due to voltage drops (as in thyristor-based rectifiers in AC and DC drives).

Energy savings

Most of the motor drive costs are energy costs. Often the investment is only a small fraction of total costs. Compared with the other braking methods like mechanical and resistor braking, the energy savings can be significant. Braking resistors also take up installation space and the handling of waste heat can be a problem.

Easy and flexible

The standard software contains the Adaptive Programming feature that enables the user to make small modifications to the software. Other software alternatives are also available for special applications. There are two features that facilitate commissioning: the line converter is a plug and play product, so no settings are needed. The motor inverter parameters can be easily adjusted from control panel with the new interactive software, Start-up Assistant.

Excellent supply side features

The unique DTC/LCL filter features:

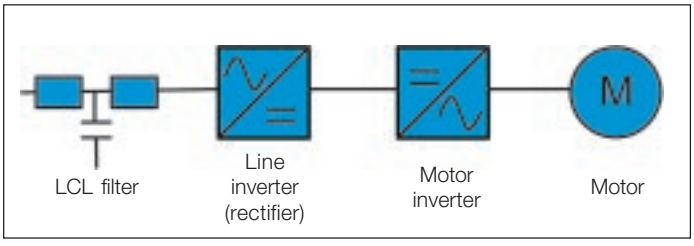
- Fundamental power factor unity
- Extremely low current and voltage harmonics
- Very small commutating notches

DTC type control has several advantages:

- Ultra-fast response to changes
- No fixed switching frequency, resonating risk avoided
- Switching only when needed, less switching stress

Other features resulting from the DTC's high stability:

- Needs no tuning according to grid inductance
- Plug and play line inverter



ACS 800 main modules

Excellent motor side features

The active line rectifier together with DTC ensures robust behaviour even in demanding conditions.

- Torque ia always stable even with unstable net voltage
- Excellent line voltage dip proof operation
- Extremely fast and smooth operation in motoring-regenerating-motoring transitions

The motor converter uses the standard ACS 800 DTC motor control. This ultrafast control loop enables fast responses to load and line voltage changes. The adjustable DC voltage boost function makes it possible to shift the field weakening point to higher frequencies. In many cases this feature enables a one size smaller motor to be selected.

In moderate voltage drops the control can maintain full DC voltage and the motors get full power. In heavy voltage drops power cannot be obtained from the line, but the drive can be kept ready to produce power immediately when voltage returns. The time between maximum motoring and regenerating power is in the range of milliseconds.

Type	Nominal ratings		150% duty cycle		200% duty cycle		Information for units and cabinets						
	$I_{cont\ max}$	$P_{cont\ max}$	I_4/5 min	I_1/5 min	I_50/60 s	I_10/60 s I max	Frame size	[1] Height	[2] Width	Weight	Noise level	Ploss	Air flow
	A	kW	A (AC)	A (AC)	A (AC)	A (AC)		mm	mm	kg	dB	kW	m^3/h
U_N=400 V (Range 380-415 V)													
ACS800-17-0120-3	178	90	147	221	147	294	R7i	2130	730	305	63	4.1	1920
ACS800-17-0185-3	259	132	194	291	178	356	R8i	2130	1230	625	63	6.0	3650
ACS800-17-0225-3	312	160	234	351	216	432	R8i	2130	1230	625	63	7.3	3650
ACS800-17-0265-3	379	200	284	426	260	520	R8i	2130	1230	625	63	8.9	3650
ACS800-17-0335-3	474	250	356	533	316	632	R9i	2130	1230	655	63	11.2	3650
ACS800-17-0405-3	576	315	432	648	395	790	R9i	2130	1230	655	63	13.9	3650
ACS800-17-0630-3	907	500	680	1020	600	1200	R11i	2130	3630	1490	68	22.0	7280
ACS800-17-0765-3	1094	630	821	1231	751	1502	R11i	2130	3630	1490	68	27.2	7280
ACS800-17-0935-3	1336	710	1002	1503	901	1802	R12i	2130	4630	2530	71	31.7	10330
ACS800-17-1125-3	1624	900	1218	1827	1126	2252	R12i	2130	4630	2530	71	39.3	10330
U_N=500 V (Range 380-500 V)													
ACS800-17-0100-5	112	75	84	126	84	168	R6i	2130	730	305	63	3.4	1920
ACS800-17-0140-5	164	110	135	203	135	270	R7i	2130	730	305	63	4.9	1920
ACS800-17-0215-5	246	160	185	277	164	328	R8i	2130	1230	625	63	7.2	3650
ACS800-17-0255-5	295	200	221	332	200	400	R8i	2130	1230	625	63	8.8	3650
ACS800-17-0325-5	368	250	276	414	240	480	R8i	2130	1230	625	63	11.1	3650
ACS800-17-0395-5	448	315	336	504	300	600	R9i	2130	1230	655	63	13.7	3650
ACS800-17-0495-5	565	400	424	636	365	730	R9i	2130	1230	655	63	17.4	3650
ACS800-17-0770-5	887	630	665	998	570	1140	R11i	2130	3630	1490	68	27.3	7280
ACS800-17-0935-5	1073	710	805	1208	694	1388	R11i	2130	3630	1490	68	31.7	7280
ACS800-17-1090-5	1263	900	947	1421	855	1710	R12i	2130	4630	2530	71	38.9	10330
ACS800-17-1385-5	1593	1120	1195	1793	1040	2080	R12i	2130	4630	2530	71	48.7	10330
U_N=690 V (Range 525-690 V)													
ACS800-17-0205-7	176	160	132	198	127	254	R8i	2130	1230	625	63	7.2	3650
ACS800-17-0255-7	210	200	158	236	150	300	R8i	2130	1230	625	63	8.8	3650
ACS800-17-0315-7	264	250	198	297	179	358	R8i	2130	1230	625	63	10.9	3650
ACS800-17-0375-7	310	315	233	349	225	450	R9i	2130	1230	655	63	13.4	3650
ACS800-17-0485-7	410	400	308	461	265	530	R9i	2130	1230	655	63	17.2	3650
ACS800-17-0750-7	630	630	473	709	428	856	R11i	2130	3630	1730	68	27.0	7280
ACS800-17-0900-7	755	710	566	849	504	1008	R11i	2130	3630	1730	68	31.3	7280
ACS800-17-1045-7	874	900	656	983	641	1282	R12i	2130	4630	2530	71	38.1	10330
ACS800-17-1385-7	1156	1120	867	1301	755	1510	R12i	2130	4630	2530	71	48.7	10330

Notes:

[1] Cabinet height is 2130 mm, 2072 mm for IP 54R

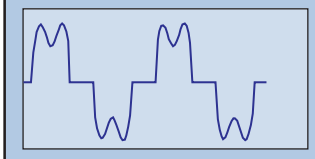
[2] An additional 400 mm is required in frame size R11 with top exits
An additional 600 mm is required in frame size R12 with top exits
Cabinet depth is 731 mm

Dimensions limit the number of options in frames R6 / R7 / R8 / R9.

Alternatives in reducing line harmonics

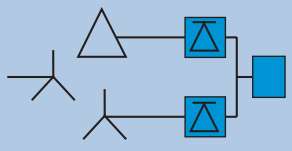
6 pulse rectifier

Transformer and cabling simple

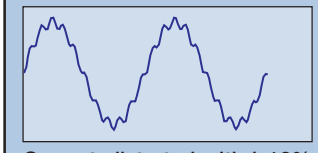


Current very distorted >Ithd 30%

12 pulse rectifier

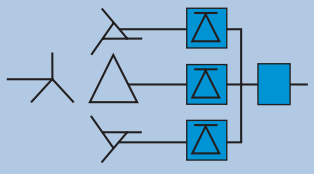


Transformer and cabling complicated

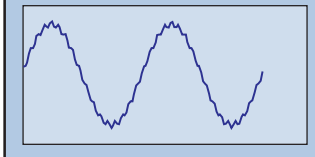


Current distorted >Ithd 12%

18 pulse rectifier



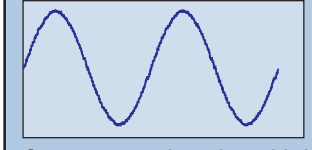
Transformer and cabling complicated



Current wave form good >Ithd 6%

ACS800-17

Transformer and cabling simple



Current wave form best Ithd 4%

Technical specifications for the ACS800-17

Mains connection

3-Phase supply voltage:	U_{3IN} = 380…415 V ± 10% U_{5IN} = 380…500 V ± 10% U_{7IN} = 525…690 V ± 10%
Frequency:	50, 60 Hz ± 2%
Power factor:	$\cos\varphi_1$ = 1 (fundamental) $\cos\varphi$ = 0.99 (total)

Efficiency

At nominal power:	97%...98%

Motor connection

3-Phase output voltage:	0...U_{3IN}/U_{5IN}
Frequency control:	0...±300 Hz 0...±120 Hz 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	±4% with nominal torque
Closed loop	±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

Enclosure

Paint color:	Light beige RAL 7035 semi-gloss

Environmental limits

Ambient temperature:	
Transportation:	-40...+70°C
Storage:	-40...+70°C
Operation:	0...+50°C, no frost allowed 40...50°C at reduced output power (1.5%/1°C).
Relative humidity	5 to 95%, no condensation allowed.
Cooling method:	Dry clean air
Altitude:	0...1000 m without derating 1000...4000 m with derating, 1%/100 m

ACS 800 Single drive modules

ACS800-04, 90 to 500 kW

Optimized construction

The ACS800-04 has several benefits that make it the optimal choice for panel builders.

No special EMC proof cabinets are needed. In ACS800-04 drives with in-built EMC filtering, both radiated and conducted emissions are restricted to EN 61800-3 limits without the need for any extra hardware.

Innovative fixing mechanics which minimize the number of bolts facilitate the attachment of the drive module. Fixing of the control unit and control panel is easy thanks to the DIN rail mounting and new type of mounting platform.
All this is topped by detailed cabinet assembly instructions that come with every drive. The instructions include cabinet layout examples, the required air volumes and other necessary information.
The compact size with plenty of built-in options minimizes both space requirements and the amount of assembly work needed.

Accessories for the ACS800-04

In-built options:

- Brake chopper
- EMC filter:
  - EN 61800-3, 2nd environment, unrestricted distribution
- Common mode filters for motor protection
- Analogue and digital I/O extension modules
- Fieldbus modules
- Pulse encoder interface module

Other options:

- Control panel and mounting platform

Easy cabling

The easily accessible power terminals with plenty of space around them make power cabling for the ACS800-04 easy. Moreover, a separate control unit enables easy access to the I/O terminals. The control unit can be optimally sited inside the cabinet to enable access to the I/O terminals without needing to open the drive module.

The need for busbars and cables in the cabinet has been minimized by having the incoming power terminals on the top of the module. This enables use of the optimal cabling route.

Type	Nominal ratings		No-overload use	Light-overload use		Heavy-duty use			Noise level	Cooling air flow requirements: Heat dissipation	Cooling air flow requirements: Air flow
	$I_{cont.max}$ A	I_{MAX} A	$P_{cont.max}$ kW	I_N A	P_N kW	I_{hd} A	P_{hd} kW	Frame size	dBA	W	m^3/h
Three phase supply voltage 380, 400 or 415 V. The power ratings are valid at nominal voltage (400 V)											
ACS800-04-0140-3	206	326	110	202	110	163	90	R7	71	3100	612
ACS800-04-0170-3	245	404	132	240	132	202	110	R7	71	3650	612
ACS800-04-0210-3	289	432	160	284	160	240	132	R7	71	4250	612
ACS800-04-0260-3	368	568	200	361	200	284	160	R8	72	4900	1220
ACS800-04-0320-3	487	720	250	477	250	361	200	R8	72	6150	1220
ACS800-04-0400-3	602	904	315	590	315	477	250	R8	72	7250	1220
ACS800-04-0440-3	648	1017	355	635	355	590	315	R8	72	7900	1220
ACS800-04-0490-3	718	1017	400	704	400	635	355	R8	72	9250	1220
Three phase supply voltage 380, 400, 415, 440, 460, 480 or 500 V. The power ratings are valid at nominal voltage (500 V)											
ACS800-04-0170-5	196	326	132	192	132	162	110	R7	71	3150	540
ACS800-04-0210-5	245	404	160	240	160	192	132	R7	71	3550	540
ACS800-04-0260-5	289	432	200	284	200	224	160	R7	71	4600	540
ACS800-04-0320-5	368	568	250	361	250	284	200	R8	72	5350	1220
ACS800-04-0400-5	486	720	315	477	315	361	250	R8	72	6650	1220
ACS800-04-0440-5	526	904	355	515	355	477	315	R8	72	6800	1220
ACS800-04-0490-5	602	1017	400	590	400	515	355	R8	72	7250	1220
ACS800-04-0550-5	645	1017	450	632	450	590	400	R8	72	8900	1220
ACS800-04-0610-5	718	1017	500	704	500	632	450	R8	72	10050	1220

Type	Height mm	Width mm	Depth mm
RDCU control unit *)	282	126	40.6

*) coming with every unit

Type	Height mm	W1 mm	W2 mm	Depth mm	Weight kg
R7	1120	435	332	467	90
R8	1555	575	425	564	200

W1 = Width with cable connection plate for output cables.
W2 = Width without cable connection plate for output cables.

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. Note: max. motor shaft power is 150% P_{hd}.

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 ACS 800 must be higher than or equal to the rated motor current to achieve the rated motor power given in the table.

Enclosure

Degree of Protection:
IP 00

Start-up Assistant

The easy way of commissioning.

ABB AC Drives have always been top of their class in user- friendliness. The new ACS 800 AC Drive brings a whole new meaning to "user-friendliness". Thanks to the Start-up Assistant, the commissioning and tuning of a high performance drive could not be easier.

Faster and easier commissioning

When you turn on your drive for the first time the Start-up Assistant actively guides you through the commissioning procedure. You do not need to worry which parameters should be set, the Start-up Assistant does that.

To ensure a convenient commissioning procedure the Start-up Assistant speaks 14 different languages. It asks for motor nominal values as well as the I/O configuration and application specific parameters like acceleration and deceleration times. After this, the ACS 800 is ready for your process.

All this saves your time enabling you to concentrate on essential issues.

On-line info system

To make it easier and more informative, there is an on-line info system available at each step helping to set the correct values for each parameter. Just one push of the button and useful hints and information for that specific stage are available to you.

Each step also includes reference to the printed manuals if even more specific information is needed.

Features

- Easy and fast commissioning procedure.
- Intelligent guide to assist you through the commissioning.
- Your own language.
- On-line info system always available.

The ACS 800 offers you all this as a standard feature.

Adaptive Programming

No extra hardware or software needed.

The freely programmable I/O and the extensive parameter selections make the ACS 800 highly suitable as such for most applications. The ACS 800, however, goes one step further with the addition of Adaptive Programming as a standard feature. It is like having a small PLC inside your drive. Adaptive Programming needs no additional hardware or software but is always there when needed.

Programming done in a few minutes

Adaptive Programming consists of a set of blocks, which can be programmed to perform any of the predefined set of functions. All the common functions for making a real block program are available to you.

The user can freely define inputs to the blocks, wiring between the blocks and connections to the drive I/O or to the drive control. In this way the user is able to create new input and/or output signals and modify the drive's speed or torque control.

Programming the new ACS 800 could not be any easier. All you need is the control panel and the programming is as simple as setting parameters. With Adaptive Programming the user is really able to modify the new ACS 800 to suit the process perfectly.

Because no extra hardware or software is needed, the programming can be done in a few minutes even on-site.

Optimal adaptability

- Small PLC inside.
- Program your drive on-site during commissioning.
- Create your own I/O signals, modify speed or torque reference chain or set a timer.
- Do it without any additional hardware or software.
- As simple as setting a parameter.

There is also a PC tool available for Adaptive Programming.
For more please see page 20.

Features

- 15 programmable function blocks
- Available functions:
  - Logical: AND, OR and XOR
  - Mathematical: add, mul, div, abs, max and min
  - Other: timer, switch, comparator, filter, SR, PI and user defined warnings or faults
- Freely definable execution order
- Easy documentation

The ACS 800 offers you all this as a standard feature!

Control Solutions

ABB's ready-made Control Solutions for specific drive applications.

Centrifuge Control

Practical programmable sequences for conventional centrifuges. Decanter Control for accurate speed difference control of two shafts.

Extruder Control

High starting torque, accurate speed/torque control and overload protection for demanding extruder applications.

Pump and Fan Control

Pump and Fan Control provides better flow control and cost savings up to 5 parallel motors in various industrial pump and fan applications.

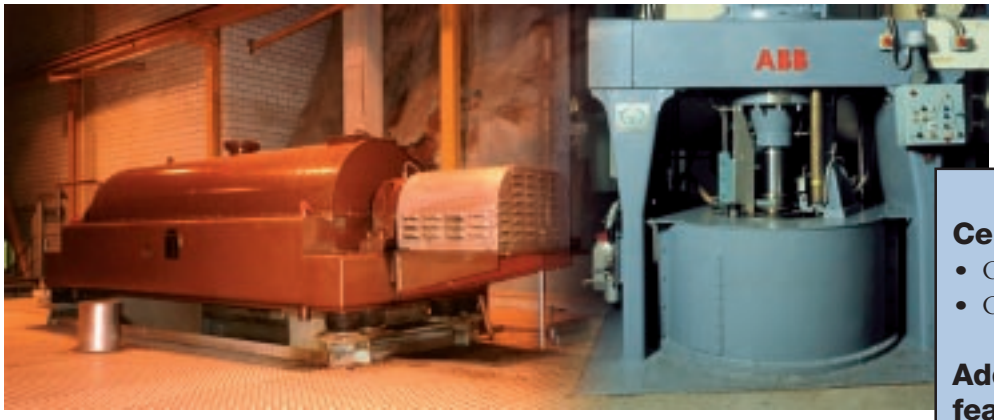
Spinning Control & Traverse Control

Spinning Control and Traverse Control make a perfect pair for precise control of spinning and traverse drives in textile machines.

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 protections

Control Solutions
Centrifuge Control.



Centrifuge Control features
- Centrifugation patterns
- Common DC-link possibility

Additional Decanter Control features
- Direct communication between bowl and scroll drive through optical fibres.
- Automatic scaling of process speed based on the given gear box and belt ratio.
- Speed difference control.
- Load compensation of scroll drive

Centrifuge & Decanter Centrifuge as one

The Centrifuge application consists of programmable sequences for centrifuges e.g. in the food and bewerage industries. The Decanter Control is integrated with the Centrifuge Control. This feature can be applied in all applications needing co-ordinated speed difference control.

A decanter (separator, centrifuge) is used to separate solid particles from fluid. In a typical decanter two rotating shafts called bowl and scroll are used. Direct Torque Control enables smooth operation with different kinds of fluid viscosity and automatically adapts to load changes.

Control Solutions
Extruder Control.

AC Drives designed for extruder applications

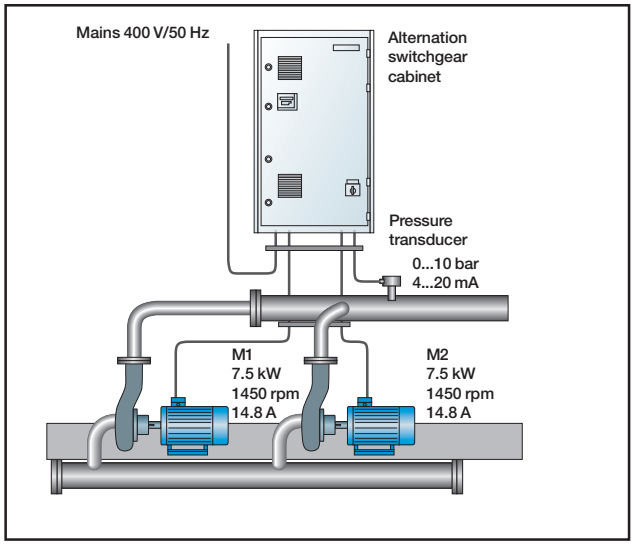
An extruder is an application where material typically in granulate or pulverized form is driven through a screw to achieve a continuous material form to be further modified in the manufacturing process. Due to the material characteristics high starting torque is often needed. The screw and also the delicate mechanical parts of the machinery need to be protected against overload.

Extruder application features
- High starting torque, excellent speed accuracy without encoder.
- Adaptive torque limitation feature.
- Two sets of parameterised stall protection functions.
- Digital potentiometer with two different accelerating and decelerating ramp times.
- Four control locations.

Control Solutions
Pump and Fan Control.

Introduction
There are many pump and fan installations with quite extensive flow variations. Such are water and sewage systems, air conditioning, district heating and different industrial applications. A common solution for these is to run several fixed speed pumps or fans in parallel and flow control is made by switching them on and off. This kind of control causes discontinuous flow and there is a risk of damage caused by pressure strokes. Better flow control can be achieved with variable speed drives. The cost can be reduced by putting a variable speed drive to one unit only and controlling the fixed speed units with the Pump and Fan Control application, PFC.

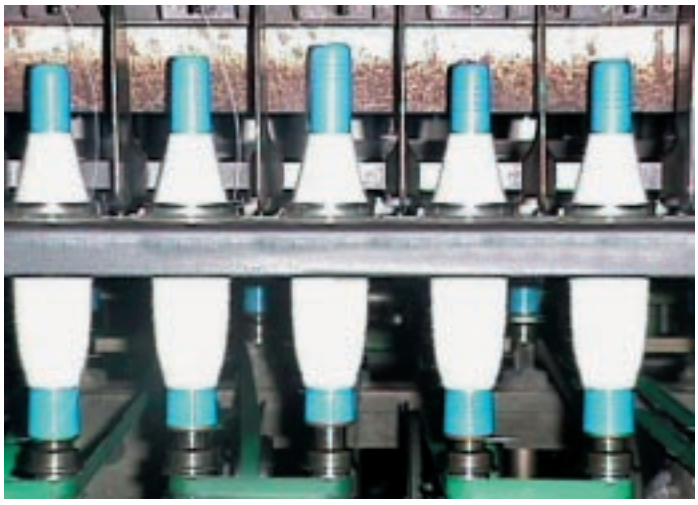
Features
- The maximum number of units (pumps or fans) in parallel is 5 (1 with speed control and 4 with fixed speed).
- PI controller with
  - setpoint adjustment internal or external.
  - actual value with five selectable units.
- Setpoint steps for 4 motors.
- Sleep and wake up level and delay settings.
- Start and low frequency settings for 4 motors.
- Start and stop delays.
- Autochange delay and level settings.
- Automatic interlocking between motors.



Pumping station for two pumps. ACS 800 is installed inside the alternation switchgear cabinet.

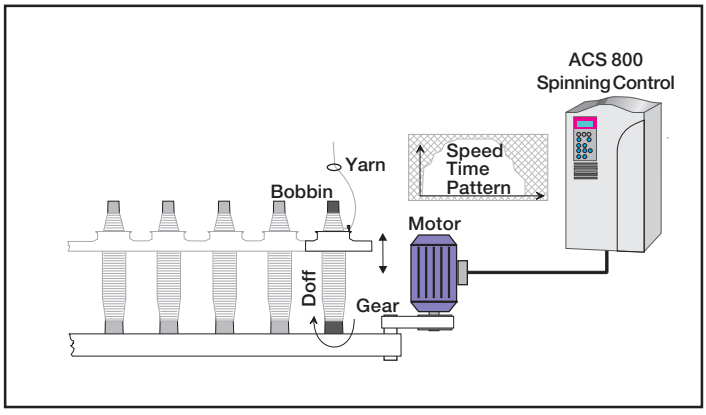
Control Solutions

Spinning Control & Traverse Control.

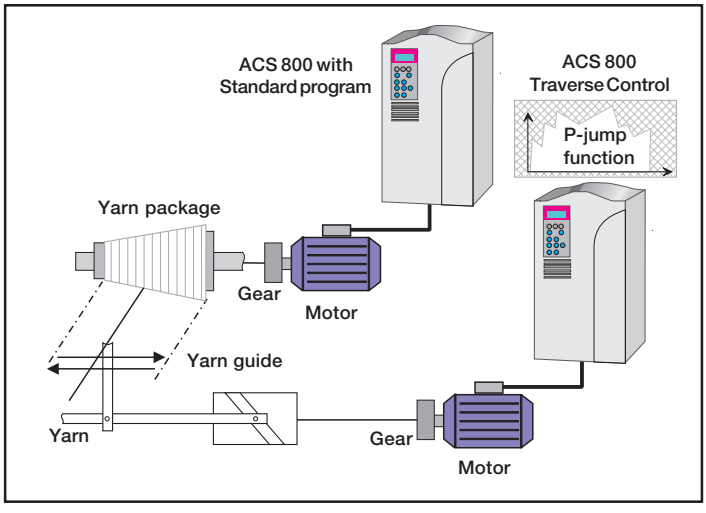


ACS 800 Spinning Control is a solution for the precise control of spinning machine and for preventing yarn breakages. The ACS 800 Drive features allow maximum production and prevent yarn breakages during start-up and any power losses

The Traverse Control is designed to run traverse drives guiding yarn into a package in textile machines. To avoid layering at the reversal points of the yarn guide an instantaneous change, a P-jump, is made at speed.



The principle of the Spinning Control.



The principle of the Traverse Control.

Features for Spinning Control:

- Wobbulation function
- Shiftwise production calculation
- Automatic doff (pattern) selection
- 4 speed time patterns

Features for Traverse Control:

- Wide selection for base speed reference
- Dynamic quick steps, real or proportional steps

ACS 800 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 connections.

Below are the standard control connections of the ACS 800 single drive with Factory Macro. For other ACS 800 application macros the functions may be different.

Standard I/O on RMIO-01 Board

- **3 analog inputs:** differential, common mode voltage, galvanically isolated as a group.
  - One ±0(2)...10 V, resolution 12 bit
  - Two 0(4)...20 mA, resolution 12 bit
- **2 analog outputs:**
  - 0(4)...20 mA, resolution 10 bit
- **7 digital inputs:** galvanically isolated as a group
  - Input voltage 24 V
  - Filtering (HW) time 1 ms
- **3 relay (digital) outputs:**
  - Switchover contact
  - 24 V or 115/230 V AC
  - Max. 2 A
- **Reference voltage output:**
  - ±10 V ± 0.5%, max. 10 mA
- **Auxiliary power output:**
  - +24 V ± 10%, max. 250 mA

Optional I/O

Analog I/O Extension Module RAIO-01

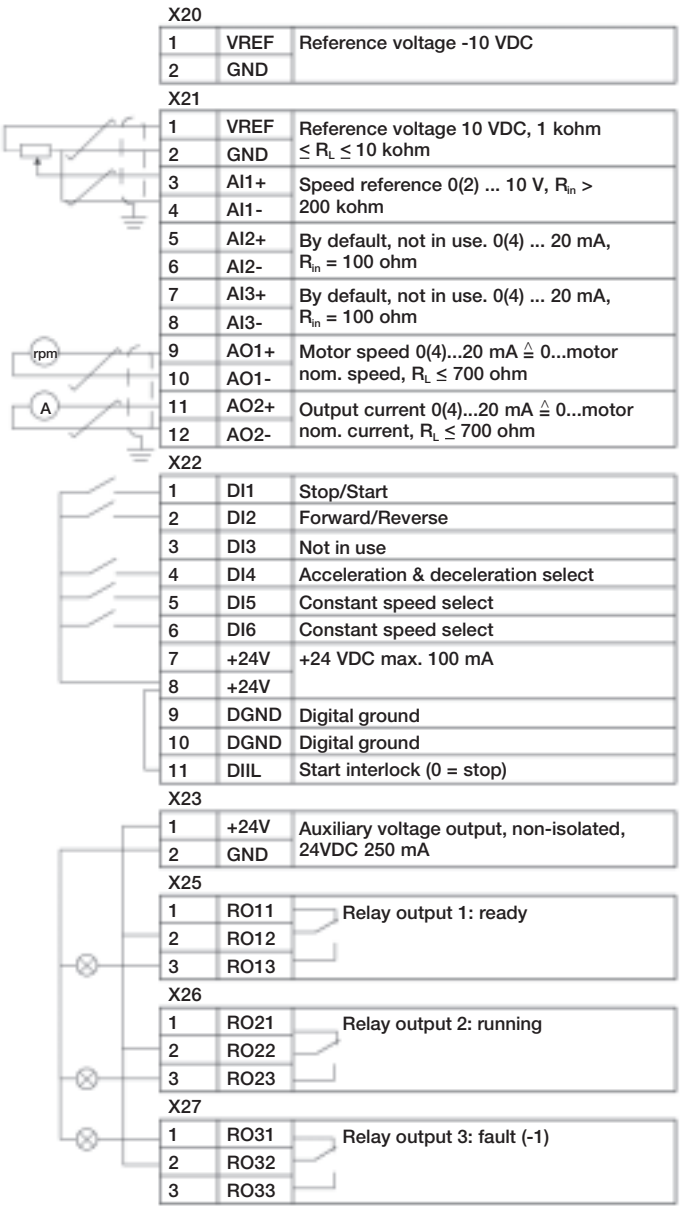
- **2 analog inputs:** galvanically isolated from 24 V supply and ground
  - ±0(2)...10 V, 0(4)... 20 mA or ±0...2 V, resolution 12 bits
- **2 analog outputs:** galvanically isolated from 24 V supply and ground
  - 0(4)...20 mA, resolution 12 bit

Digital I/O Extension Module RDIO-01

- **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

- **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

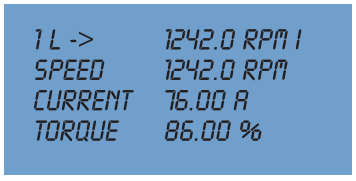


X20			
1	VREF	Reference voltage -10 VDC	
2	GND		
X21			
1	VREF	Reference voltage 10 VDC, 1 kohm ≤ R_L ≤ 10 kohm	
2	GND		
3	AI1+	Speed reference 0(2) ... 10 V, R_{in} > 200 kohm	
4	AI1-		
5	AI2+	By default, not in use. 0(4) ... 20 mA, R_{in} = 100 ohm	
6	AI2-		
7	AI3+	By default, not in use. 0(4) ... 20 mA, R_{in} = 100 ohm	
8	AI3-		
9	AO1+	Motor speed 0(4)...20 mA ≙ 0...motor nom. speed, R_L ≤ 700 ohm	
10	AO1-		
11	AO2+	Output current 0(4)...20 mA ≙ 0...motor nom. current, R_L ≤ 700 ohm	
12	AO2-		
X22			
1	DI1	Stop/Start	
2	DI2	Forward/Reverse	
3	DI3	Not in use	
4	DI4	Acceleration & deceleration select	
5	DI5	Constant speed select	
6	DI6	Constant speed select	
7	+24V	+24 VDC max. 100 mA	
8	+24V		
9	DGND	Digital ground	
10	DGND	Digital ground	
11	DIIL	Start interlock (0 = stop)	
X23			
1	+24V	Auxiliary voltage output, non-isolated, 24VDC 250 mA	
2	GND		
X25			
1	RO11	Relay output 1: ready	
2	RO12		
3	RO13		
X26			
1	RO21	Relay output 2: running	
2	RO22		
3	RO23		
X27			
1	RO31	Relay output 3: fault (-1)	
2	RO32		
3	RO33		

Control Panel

ACS 800 with user-friendly functionality.

The ACS 800 control panel provides a great deal of information in plain, easy-to-understand language.



Actual value

The ACS 800 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

Control Panel

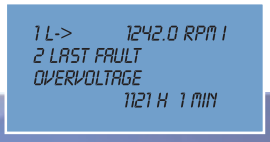
Multilingual alphanumeric display (4 lines x 20 characters) – plain text messages in 14 languages.

Intelligent removable control panel can be mounted on the ACS 800 enclosure or remotely.

Local drive operation from control panel, including LOCAL/REMOTE selection, START/STOP, RESET, MOTOR ROTATION DIRECTION and REFERENCE setting.

Fault memory

A built-in fault memory stores information relating to the latest 64 faults, each with a time stamp.



Parameter copying

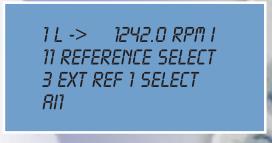
Parameter copy feature allows all drive parameters to be copied from one frequency converter to another to simplify commissioning.

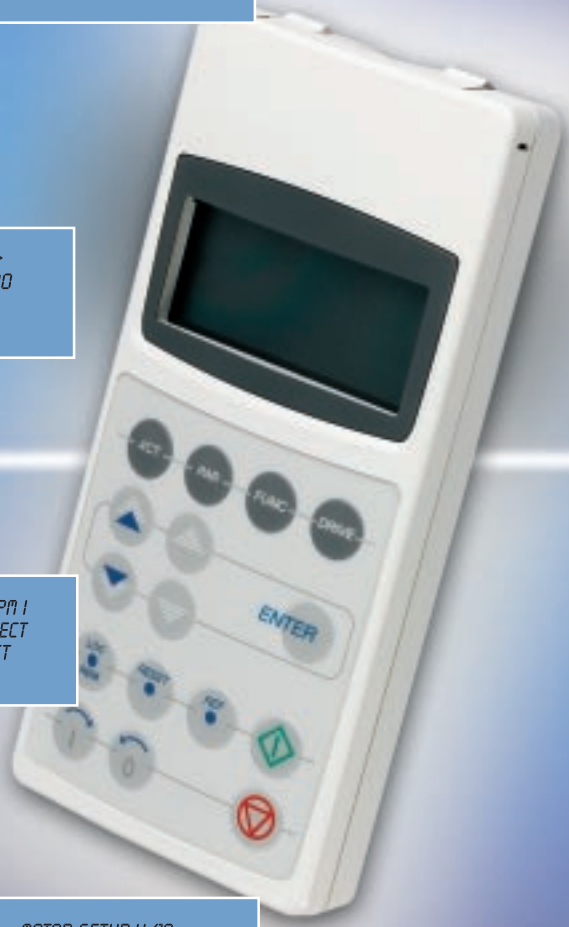
Centralised control

One panel can control up to 31 drives.

Simple arrangement

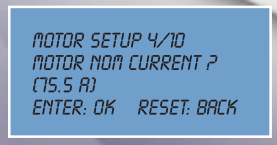
Parameters are organised into groups for easy programming.





Start-up Assistant

Easy commissioning with the Start-up Assistant. The Start-up Assistant actively guides you through the commissioning procedure.



Adaptive Programming

No extra hardware or software required for Adaptive Programming.

Fieldbus Control

Gateway to your process.

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

The fieldbus gateway is a snap-on module that can be easily mounted inside the drive. As a result of the wide range of fieldbus gateways, your choice for an automation system becomes 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 like 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, like 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 drive Alarm, Limit and Fault Words reducing the down time of the drive and therefore also the down time 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.

Easy to expand

Serial communication simplifies the latest trend of modular machine design enabling expansion of the installation at a later stage with low effort.

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.

Features

- PROFIBUS-DP
- DeviceNet
- CANopen
- ControlNet
- ModbusPlus
- LONWORKS®
- Modbus
- Ethernet
- InterBus-S

Dynamic Braking

Brake Choppers and Resistors.

Brake Chopper

The ACS 800 series has in-built brake choppers for all types. Therefore, no additional space or installation time is needed. The brake chopper is part of the standard delivery for the R2 and R3 frames. For the other frames a brake chopper is a selectable option.

Braking control is integrated into the ACS 800 series. It controls the braking, supervises the system status and detects failures such as brake resistor and resistor cable short circuits, chopper short circuit, and calculated resistor overtemperature.

Brake Resistor

The SACE/SAFUR brake resistors are separately available for all ACS 800 types. Resistors other than the standard resistors may be used providing the specified resistance value is not decreased, and the heat dissipation capacity of the resistor is sufficient for the drive application.

For ACS 800 units, no separate fuses in the brake circuit are required if the following conditions are met:

- The ACS 800 mains cable is protected with fuses.
- No mains cable/fuse overrating takes place.

Brake Resistor	Height mm	Width mm	Depth mm	Weight kg
SACE08RE44	365	290	131	6.1
SACE15RE22	365	290	131	6.1
SACE15RE13	365	290	131	6.8
SAFUR80F500	600	300	345	14
SAFUR90F575	600	300	345	12
SAFUR180F460	1320	300	345	32
SAFUR125F500	1320	300	345	25
SAFUR200F500	1320	300	345	30
SAFUR210F575	1320	300	345	27

Maximum braking power of the ACS 800 equipped with the standard chopper and the standard resistor.

P_{br5} = 5 s/ 1 min.
P_{br10} = 10 s/ 1 min.
P_{br30} = 30 s/ 1 min.
The drive and the chopper will withstand this braking power for 5/10/30 seconds every one minute. **Note**: The braking energy transmitted to the resistor during any period shorter than 400 seconds may not exceed E_r.

P_{brcont} = Continuous brake chopper power.

R = Resistance value for the listed resistor type. **Note**: This is also the minimum allowable resistance value for the brake resistor.

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

P_{rcont} = Continuous power (heat) dissipation of the resistor when placed correctly. Energy E_r dissipates in 400 seconds.

1) Possible if Ambient below 33°C, otherwise 3 seconds or 198 kW 5 seconds
2) Possible if Ambient below 33°C, otherwise 3 seconds or 600 kW 5 seconds
3) Possible if Ambient below 33°C, otherwise 8 seconds or 400 kW 10 seconds

All brake resistors are to be installed outside the converter module.
The SACE brake resistors are built in an IP 21 metal housing.
The SAFUR brake resistors are built in an IP 00 metal frame.

U_N = 400 V (380, 400, 415 V)

ACS 800 Type	Brake Chopper Power	Brake Resistor(s)			
	Continuous P_{brcont} [kW]	Type	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-01-0003-3	1.1	SACE08RE44	44	210	1
ACS800-01-0004-3	1.5	SACE08RE44	44	210	1
ACS800-01-0005-3	2.2	SACE08RE44	44	210	1
ACS800-01-0006-3	3	SACE08RE44	44	210	1
ACS800-01-0009-3	4	SACE08RE44	44	210	1
ACS800-01-0011-3	5.5	SACE15RE22	22	420	2
ACS800-01-0016-3	7.5	SACE15RE22	22	420	2
ACS800-01-0020-3	11	SACE15RE22	22	420	2
ACS800-01-0025-3	23	SACE15RE13	13	435	2
ACS800-01-0030-3	28	SACE15RE13	13	435	2
ACS800-01-0040-3	33	SAFUR90F575	8	1800	4.5
ACS800-01-0050-3	45	SAFUR90F575	8	1800	4.5
ACS800-01-0060-3	56	SAFUR90F575	8	1800	4.5
ACS800-01-0070-3	68	SAFUR80F500	6	2400	6
ACS800-01-0100-3	83	SAFUR125F500	4	3600	9
ACS800-01-0120-3	113	SAFUR125F500	4	3600	9

U_N = 400 V (380, 400, 415 V)

ACS 800 Type	Brake Chopper Power				Brake Resistor(s)			
	5 / 60 s P_{br5} [kW]	10 / 60 s P_{br10} [kW]	30 / 60 s P_{br30} [kW]	Continuous P_{brcont} [kW]	Type	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-02-0140-3	135	135	99	66	SAFUR200F500	2.70	5400	13.5
ACS800-02-0170-3	165	150	99	66	SAFUR200F500	2.70	5400	13.5
ACS800-02-0210-3	165	150	99	66	SAFUR200F500	2.70	5400	13.5
ACS800-02-0260-3	240	240	237	120	2xSAFUR200F500	1.35	10800	27
ACS800-02-0320-3	300	300	237	120	2xSAFUR200F500	1.35	10800	27
ACS800-02-0400-3	375	355	237	120	2x(2xSAFUR125F500)	1.00	14400	36
ACS800-02-0440-3	473	355	237	120	2x(2xSAFUR210F575)	0.85	16800	42
ACS800-02-0490-3	500	355	237	120	2x(2xSAFUR210F575)	0.85	16800	42

U_N = 500 V (380, 400, 415, 440, 460, 480 and 500 V)

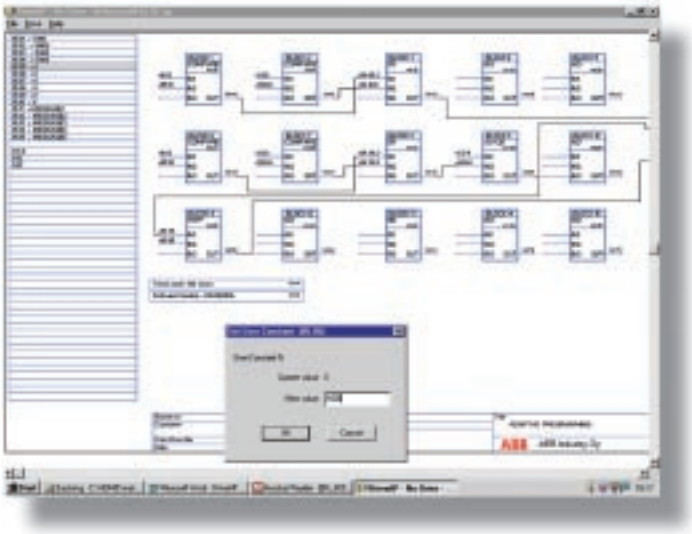
ACS 800 Type	Brake Chopper Power	Brake Resistor(s)			
	Continuous P_{brcont} [kW]	Type	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-01-0004-5	1.5	SACE08RE44	44	210	1
ACS800-01-0005-5	2.2	SACE08RE44	44	210	1
ACS800-01-0006-5	3	SACE08RE44	44	210	1
ACS800-01-0009-5	4	SACE08RE44	44	210	1
ACS800-01-0011-5	5.5	SACE08RE44	44	210	1
ACS800-01-0016-5	7.5	SACE15RE22	22	420	2
ACS800-01-0020-5	11	SACE15RE22	22	420	2
ACS800-01-0025-5	15	SACE15RE22	22	420	2
ACS800-01-0030-5	28	SACE15RE13	13	435	2
ACS800-01-0040-5	33	SACE15RE13	13	435	2
ACS800-01-0050-5	45	SAFUR90F575	8	1800	4.5
ACS800-01-0060-5	56	SAFUR90F575	8	1800	4.5
ACS800-01-0070-5	68	SAFUR90F575	8	1800	4.5
ACS800-01-0100-5	83	SAFUR125F500	4	3600	9
ACS800-01-0120-5	113	SAFUR125F500	4	3600	9
ACS800-01-0140-5	135	SAFUR125F500	4	3600	9

U_N = 500 V (380, 400, 415, 440, 460, 480 and 500 V)

ACS 800 Type	Brake Chopper Power				Brake Resistor(s)			
	5 / 60 s P_{br5} [kW]	10 / 60 s P_{br10} [kW]	30 / 60 s P_{br30} [kW]	Continuous P_{brcont} [kW]	Type	R [Ohm]	E_r [kJ]	P_{rcont} [kW]
ACS800-02-0170-5	165	160	120	80	SAFUR200F500	2.70	5400	13.5
ACS800-02-0210-5	198	160	120	80	SAFUR200F500	2.70	5400	13.5
ACS800-02-0260-5	240 1)	160	120	80	SAFUR200F500	2.70	5400	13.5
ACS800-02-0320-5	300	300	300	170	2xSAFUR125F500	2.00	7200	18
ACS800-02-0400-5	375	375	300	170	2XSAFUR210F575	1.70	8400	21
ACS800-02-0440-5	473	450 3)	300	170	2xSAFUR180F460	1.20	12000	30
ACS800-02-0490-5	533	450 3)	300	170	2x(2xSAFUR125F500)	1.00	14400	36
ACS800-02-0550-5	600	450 3)	300	170	2x(2xSAFUR125F500)	1.00	14400	36
ACS800-02-0610-5	630 2)	450 3)	300	170	2x(2xSAFUR125F500)	1.00	14400	36

Programming Tool

DriveAP for Adaptive Programming.



Easy to use PC tool

DriveAP is a PC tool to create, document, edit and download Adaptive Programs. Adaptive Programming can be done with the standard control panel or with DriveAP. DriveAP offers a clear and easy way to develop, test and document Adaptive Programs with a PC.

DriveAP is a user-friendly tool to modify function blocks and their connections. No special programming skills are required. Basic knowledge about block programming is enough.

Adaptive Programming results are easy to document as hard copies or store as PC files with DriveAP.

Upload or download

Adaptive Programs can be uploaded from connected drives and displayed graphically on a PC screen e.g. for service or documentation purposes.

Ready made Adaptive Programs can be downloaded to any of the connected drives.

Three operating modes

- Stand Alone Mode - DriveAP is not connected to a drive. Adaptive Programming can be carried out e.g. in the office and downloaded later on.
- Off-Line Mode - DriveAP is connected to a drive. Adaptive Programming is carried out in batch mode.
- On-Line Mode - DriveAP is connected to a drive. Changes to the program are written immediately to the drive and actual values are shown on the screen in real time.

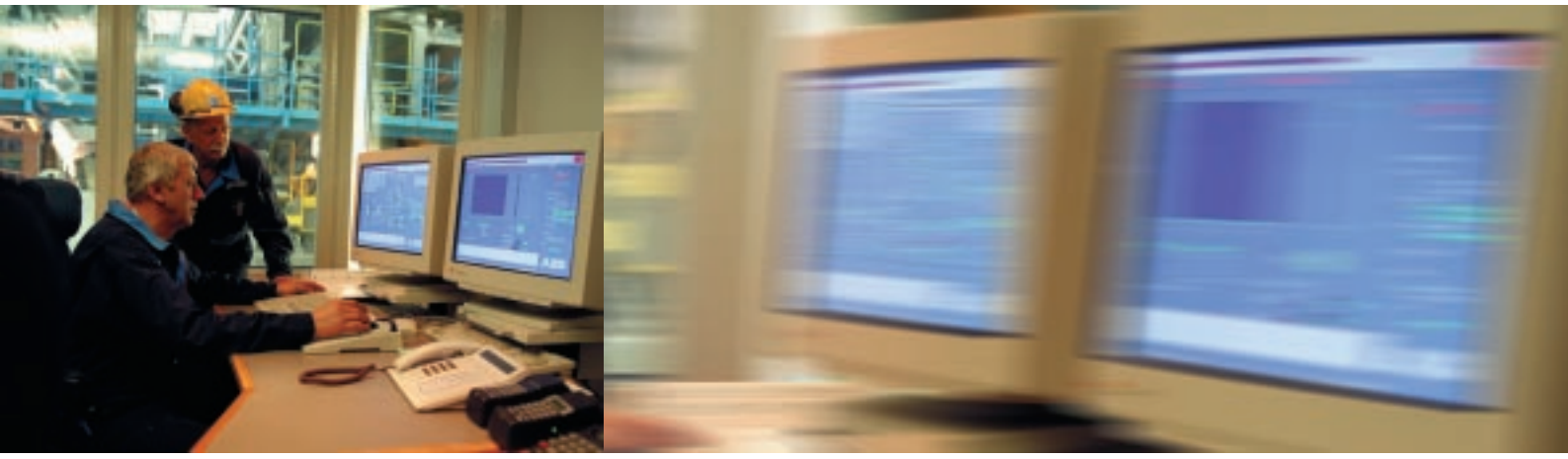
DriveAP is part of the Drive^{IT} folder of the Industrial^{IT}.

Features

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

Integration Tool

DriveOPC for Windows™ based monitoring.



DriveOPC

DriveOPC is a software package which allows OLE for Process Control (OPC) communication between Windows applications and ABB drives. It is an ideal tool for integrating commercial PC monitoring software and ABB drives.

DriveOPC can access all drives connected to the fast optical link of the drives. The number of measuring points is unlimited.

OPC based software

OPC stands for Ole for Process Control, an open architecture interface design defined by the international OPC Task Force. It is an open interface for Factory Automation.

Remote monitoring

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

Read access to:

- Drive status: local, running, direction, fault, warning, homing, 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.

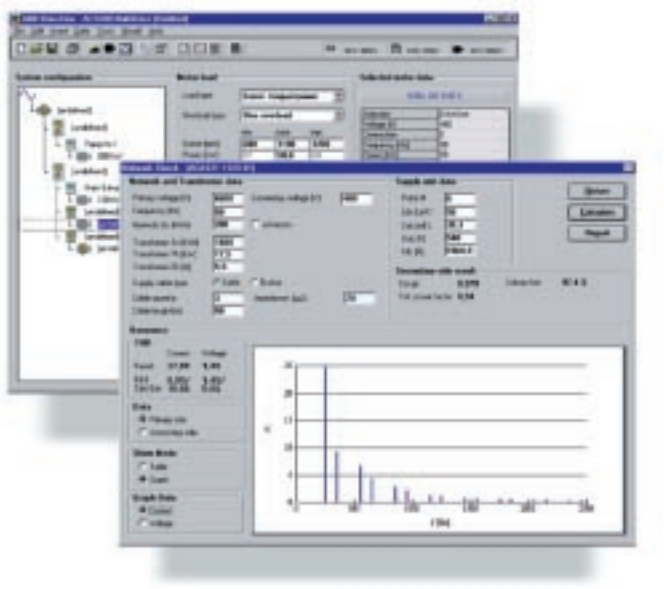
DriveOPC is part of the Drive^{IT} folder of the Industrial^{IT}.

Features:

- To control and monitor with PC-based process control software
- Standard interface
- Remote connection over LAN (local area networks)
- Access to
  - Drive control
  - Signals and parameters
  - Data and Fault loggers

Engineering Tool

DriveSize for dimensioning drives and motors.



The DriveSize main screen and a network check calculation window.

Quick dimensioning with standardized rules

DriveSize is a PC program for helping the user to select an 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 a current version of 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 still honouring the relatively complicated rules. A manual selection mode is also supported.

DriveSize variable speed drive dimensioning for

- 3-phase ABB motors
- ABB Low voltage frequency converters
- Multimotor applications
- Transformers

DriveSize functions

The software performs dimensioning based on the following input:

- Ambient temperature and altitude.
- Required IP-class and allowed temperature rise.
- Supply network characteristics.
- Mechanical load type and duty cycle and speed range.
- Current requirements for inverters.
- DC power requirement for line supply unit.
- Apparent power requirement for the transformer.

DriveSize is part of the Design^{IT} and the Drive^{IT} folders.

Additional functions

The software also enables you to:

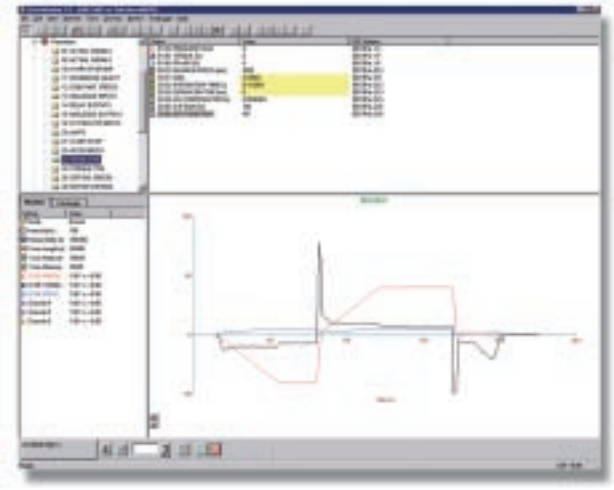
- Calculate the network harmonics and power factor.
- Calculate the DC voltage level for the line supply unit according to the network conditions you define.
- Obtain preliminary efficiency values.
- See your selections in graphical or numeric form.
- Select an alternative unit from the database.
- Print out reports.
- Save the dimensioning results into files.

Features

- Select an optimal motor, frequency converter and transformer
- Dimensioning based on actual load
- Documents dimensioning results, graphical and numerical presentation
- Network harmonic and power factor calculaton
- Print out and save the results

Start-up and Maintenance Tool

DriveWindow 2



Windows™ -based, user-friendly

ABB's DriveWindow is an advanced, easy-to-use tool for the commissioning and maintenance of drive systems in different industries. 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.

DriveWindow is fully 32 bit and runs in the newer Microsoft® Windows environments. DriveWindow has connection kits for both laptop and desktop PCs.

With DriveWindow the user is able to follow the co-operation of two or more 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 Local Area Network PC, and the server side on another PC closer to the drives. This enables plant-wide monitoring to be easily accomplished with two PCs.

Powerful and versatile

- DriveWindow can access all drives connected to the high speed fiber optic network.
- Signal values can be viewed as graphs from the drive/drives.
- A screenful of signals and parameters from the drive can be monitored and edited at one time (off-line or on-line).
- View data collected and stored in the drive.
- Fault diagnosis; DriveWindow indicates the status of drives, and also reads fault history data from the drive.
- Remote monitoring, plant wide monitoring with two PCs.
- Back-up of drive parameters; in fault situations the file can be easily reloaded, resulting in time savings.
- Back-up parameters or software from the drive into PC files. This version allows the entire control board content to be saved and restored later - even to empty control boards. One empty spare control card can function as a spare part for many different sizes of drives.

DriveWindow is part of the Drive^{IT} folder of the Industrial^{IT}.

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

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