
LOW VOLTAGE AC DRIVES

ABB general purpose drives

ACS560, 0.75 to 160 kW



ACS560 all-compatible drive

Integrated essentials and options for your needs



Easy of use

The user-friendly Icon based control panel is standard, giving the user a delightful experience.



Integrated essentials

Essentials such as Modbus RTU interface, brake chopper, safe torque off, DC choke, EMC filter, digital and analog IO's make ACS560 an all convenient drive.



Fieldbus autoconfiguration

Fieldbus autoconfiguration functionality with all major automation communication networks, assures faster connection to your devices with just one setting.



All compatible

Compatible with assistant control panels ACS-AP-S, ACS-AP-I & ACS-AP-W (Bluetooth) with Hindi language support.

Bluetooth enabled control panel allows the user to connect to the drive with mobile through "Drive tune" mobile App.





Simple control panel installation

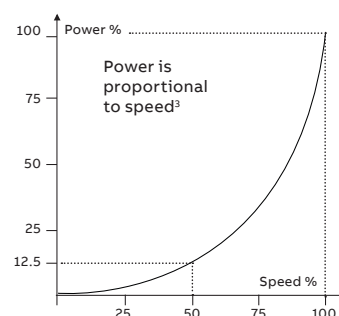
Control panel can be mounted on cabinet door without any add-ons.

A dummy panel RDUM-01 and DPMP-02 cabinet door mounting kit is offered as an option.



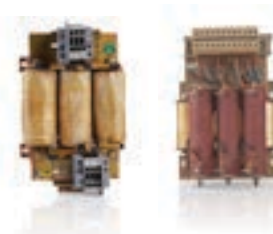
Energy optimizer

Energy optimizer help you save energy and energy efficiency information helps you monitor consumption, savings and CO₂ reduction.



Additional external options

Specially designed options such as input choke, output choke, brake resistor to make the system more



Remote monitoring

Remote monitoring with a built-in web server and standalone data logger, the NETA-21 enables worldwide and secure remote access to drives with primary focus on remote condition monitoring.

ACS560 also introduces Eco remote monitoring solution targeting remote diagnosis and support.



Start-up and maintenance tool

Drive composer PC tool for startup, configuration, monitoring and process tuning.

Automation Builder-Drive Manager for single point of commissioning and monitoring of your drives together with other automation products such as PLC, HMI etc., Drive size tool and Energy save calculator to make data driven decisions.



Special features

For increased operational efficiency

ACS560 is designed with a focus on the needs of users who require specific features for higher efficiency in general purpose applications.

PFC and SPFC application macro with auto change and interlock

- Predefined PFC and SPFC macro's logic and parameterization ensures quick commissioning of the fan or pump, keeping the system cost is low as there is no need of a PLC.
- Auto-change functionality ensures the even run time of all pumps or fans in the system to have even wear and avoid downtime of the pump/fan
- Interlock provides option to exclude a pump or fan from the system for maintenance or manual direct on-line start



Plastic extrusion application macro with screw rpm indication and supervision

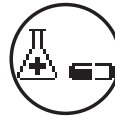
- Plastic extrusion macro has pre-configured parameters, which enables quick commissioning
- Screw speed can be displayed using load speed and gear ratio parameters which reduce the investment of additional display meter
- Supervision function can be used to avoid productivity loss and screw damage in case of a jam, by interlocking minimum required speed reference to start the drive



Pharma application macro with integrated brake chopper and brake resistor package

- Pharma application macro has pre-configured parameters to commission pharma reactor equipment by changing only one parameter
- Integrated brake chopper offers competitive advantage

Packaged brake resistor avoids resistor selection process and procurement hassles



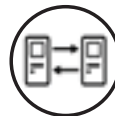
Cooling fan control mode

- Two modes of cooling fan control are included in ACS560, one is "Auto", other one is "Always on".
- This option increases reliability and productivity in textile application by avoiding the bluff accumulation.



Fieldbus auto configuration and Fieldbus macro

- Hassle free fieldbus module configuration, fit the fieldbus module and restart the drive
- All fieldbus configurations are just done by one parameter settings. Select the respective fieldbus macro, and all the fieldbus parameters are set, to send /receive data from PLC
- Supports for Modbus RTU, Modbus TCP, Profibus, Profinet, EtherCAT, CanOpen.



Current limit warning

- If the drive load hits its stall limit then it goes to stall condition causing production loss
- In ACS560, new current limit is introduced for 180% of heavy duty current I_{Hd} (less than stall limit)
- Whenever drive hits this limit a warning or a fault can be generated, so that the user gets notified about the load thereby taking necessary action and avoid production loss.

User load curve with multi point load limits



- Enhanced user load curve with multiple point limit setting, enables to set different limits at various points of load curve according to its load pattern and helps in load analysis with alerts specifying its region.



Motor pot up and down time & inching

- Motor potentiometer feature is now added with separated parameters for uptime and down time
- This gives the flexibility to set different times for increase and decrease.
- Inching can be activated through fieldbus, it uses jogging references and ramp times.



Standard interface I/O connections (ABB standard macro)

X1 Reference voltage and analog input and output			
	1	SCR	Signal cable shield (screen)
	2	AI1	External frequency reference: 0...10 V or 0/4...20mA
	3	AGND	Analog input circuit, common
	4	+10V	10 V DC reference voltage
	5	AI2	Not configured
	6	AGND	Analog input circuit, common
	7	AO1	Output frequency: 0/4...20 mA or 0...10V
	8	AO2	Output current 0/4...20 mA
	9	AGND	Analog output circuit, common
1...10 Kohm			
Max. 500 ohm			
X2, X3 Aux. voltage output and programmable digital input			
	10	+24V	Aux. voltage output +24 VDC, max. 250 mA
	11	DGND	Aux. voltage output common
	12	DCOM	Digital input common for all
	13	DI1	Stop (0) / start (1)
	14	DI2	Forward (0) / reverse (1)
	15	DI3	Constant frequency selection
	16	DI4	Constant frequency selection
	17	DI5	Ramp selection: ramp 1(0) / ramp 2 (1)
	18	DI6	Not configured
X6,X7,X8 Relay output			
	19	RO1C	Ready run 250 V AC / 30 V DC 2A
	20	RO1A	
	21	RO1B	
	22	RO2C	Running 250 V AC / 30 V DC 2A
	23	RO2A	
	24	RO2B	
	25	RO3C	Fault(-1) 250 V AC / 30 V DC 2A
	26	RO3A	
	27	RO3B	
X5 Built-in modbus			
	29	B+	Internal modbus RTU (EIA-485).
	30	A-	
	31	DGND	
(Frame R0 – R2)			
	S100	TERM & BIAS	Termination resistor and bias resistor switch
(Frame R3 – R8)			
	S100	TERM	Termination resistor switch
	S200	BIAS	Bias resistor switch
X4 Safety torque off			
		R0 – R2 R3 – R8	
	33	- OUT1	Safety torque off function. factory connection. both circuits must be closed for the drive to start. see safe torque off function in the drive hardware manual.
	34	SGND OUT2	
	35	OUT1 SGND	
	36	IN1 IN1	
	37	IN2 IN2	
X10 24 V AC/DC (frame R6-R8)			
	40	24 VACDC-In	24V AC/DC input for control unit power supply when external main power is disconnected
	41	24 VACDC-In	
Redundant auxiliary voltage output (frame R0-R2)			
	42	+24 V	Aux. voltage output +24 V DC, max. 250mA
	43	DGND	Aux. voltage output common
	44	DDOM	Digital input common for all

Technical details

Mains Connection	
Voltage and power range	3-phase, U_N from 0.75 up to 160 kW 380 to 480 V, +10%/-15%
Frequency	50/60 HZ $\pm 5\%$
Power factory	$\cos\phi = 0.98$
Efficiency (at nominal power)	98%
Motor Connection	
Voltage	0 to U_N , 3-phase
Frequency	0 to 500 Hz
Motor control	Scalar and vector control
Speed control	Static accuracy: 20% of motor nominal slip Dynamic accuracy: 1% seconds with 100% torque step
Product compliance	
CE	
Low Voltage Directive 2006/95/EC, EN 61800-5-1: 2007	
Machinery Directive 2006/42/EC, EN 61800-5-2: 2007	
EMC Directive 2004/108/EC, EN 61800-3: 2004 + A1: 2012	
Quality assurance system	
ISO 9001 and Environmental system ISO 14001	
Waste electrical and electronic equipment directive (WEEE) 2002/96/EC	
RoHS directive 2011/65/EU	
EAC	
EMC according to EN 61800-3: 2004 + A1: 2012	
ACS560 with built-in C3 category filter as standard	

Environmental limits	
Ambient temperature	
Transport	-40 to +70 °C
Storage	-40 to +70 °C
Operation area	-15 to +40 °C no frost allowed. R0 to R2 frames - No deration needed up to 50 °C, deration needed above +50 °C to +55 °C R3 to R8 frames: No deration needed up to +40 °C, deration needed above +40 °C to +55 °C. Refer HW manual for more information.
Coating	Coated circuit boards
Cooling method	
Air-cooled	Dry clean air
Altitude	
0 to 1,000 m	Without deration
1,000 to 4,000 m	With deration of 1%/100 m
Relative humidity	5 to 95%, no conden- sation allowed
Degree of protection	IP20
Functional safety	Safe torque off, (STO according EN 61800-5-2), IEC 61508 e d2: SIL 3, IEC 61511: SIL 3, IEC 62061: SIL CL 3, EN ISO 13849-1: PL E
Contamination levels	No conductive dust allowed
Storage	IEC 60721-3-1, Class 1C2 (chemical gases), Class 1S2 (solid particles)*
Operation	IEC 60721-3-3, Class 3C2 (chemical gases), Class 3S2 (solid particles)*
Transportation	IEC 60721-3-2, Class 2C2 (chemical gases), Class 2S2 (solid particles)*
* C = chemically active substances	
S = mechanically active substances	

Dimensions, weight and type designation

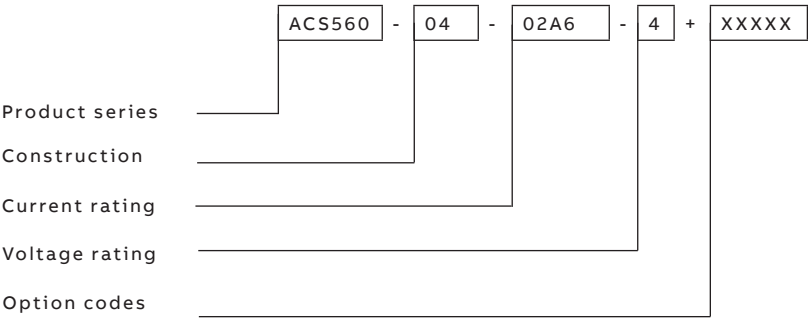
Dimensions and weight

Frames*	Height		Width	Depth		Weight
	H1 mm	H2 mm	W mm	D mm		Kg
R0	223	x	73	207		1.6
R1	223	x	97	207		1.9
R2	220	x	172	207		2.9
R3	490	x	203	229		14.9
R4	636	x	203	257		19.0
R5	719	600	203	296		28.3
R6	722	548	252	369		42.4
R7	839	600	284	371		54.0
R8	943	680	300	394		69.0



H1 - Height of front side
H2 - Height of back side (without cable connecting box)
W - Width
D - Depth
*For more information on drive frame sizes, see Rating tables (page 18).

Type Designation



Rating tables

ACS560 rating table

Order Number		Normal use			Maximum output current	Light overload use			Heavy Duty Use		
Drive	Frame	P _n [kW]	P _n [Hp]	I _n [A]	I _{max} [A]	P _{Ld} [KW]	P _{Ld} [Hp]	I _{Ld} [A]	P _{Hd} [KW]	P _{Hd} [Hp]	I _{Hd} [A]
ACS560-01-02A6-4	R0	0.75	1	2.6	3.2	0.75	1	2.5	0.55	0.75	1.8
ACS560-01-03A3-4	R0	1.1	1.5	3.3	4.7	1.1	1.5	3.1	0.75	1	2.6
ACS560-01-04A0-4	R0	1.5	2	4	5.9	1.5	2	3.8	1.1	1.5	3.3
ACS560-01-05A6-4	R0	2.2	3	5.6	7.2	2.2	3	5.3	1.5	2	4
ACS560-01-07A2-4	R0	3	4	7.2	10.1	3	4	6.8	2.2	3.0	5.6
ACS560-01-09A4-4	R0	3.7	5	9.4	13.0	4	5	8.9	3	4.0	7.2
ACS560-01-12A6-4	R1	5.5	7.5	12.6	16.9	5.5	7.5	12	3.7	5.0	9.4
ACS560-01-017A-4	R2	7.5	10	17	22.7	7.5	10	16.2	5.5	7.5	12.6
ACS560-01-025A-4	R2	11	15	25	30.6	11	15	23.8	7.5	10	17
ACS560-01-033A-4	R3	15	20	33	44.3	15	20	30.4	11	15	24.6
ACS560-01-039A-4	R3	18.5	25	39	56.9	18.5	25	36.1	15	20	31.6
ACS560-01-046A-4	R3	22	30	46	67.9	22	30	42.8	18.5	25	37.7
ACS560-01-062A-4	R4	30	40	62	76.0	30	40	58	22	30	44.6
ACS560-01-073A-4	R4	37	50	73	104.0	37	50	68.4	30	40	61
ACS560-01-088A-4	R5	45	60	88	122.0	45	60	82.7	37	50	72
ACS560-01-106A-4	R5	55	75	106	148.0	55	75	99.8	45	60	87
ACS560-01-145A-4	R6	75	100	145	178.0	75	100	138	55	75	105
ACS560-01-169A-4	R7	90	120	169	247.0	90	120	161	75	100	145
ACS560-01-206A-4	R7	110	150	206	287.0	110	150	196	90	120	169
ACS560-01-246A-4	R8	132	180	246	350.2	132	180	234	110	150	206
ACS560-01-293A-4	R8	160	215	293	418.2	160	215	278	132	180	246*

ACS-BP-S Basic control panel is standard delivery.

6xDI, 3xR0, 2xAI, 2xAO, STO, Embedded Modbus RTU are standard delivery. 1 DI is configurable for Frequency Input (16kHz).

For derating at higher altitudes, temperatures or switching frequencies, refer to HW manuals.

Nominal ratings

I_N Rated current available continuously without overloadability at 40 °C.

P_N Typical motor power in no-overload use.

Maximum output current

I_{max} Maximum output current. Available for 2 seconds at start, then as long as allowed by drive temperature.

Light overload use

I_{Ld} Continuous current when its used in Light duty applications, allows 110% of I for 1 minute every 10 minutes at +50 °C for frames R0 to R2, at +40 °C for frames R3 to R8.

P_{Ld} Typical motor power in light-duty use.

Heavy-duty use

I_{Hd} Continuous current when its used in Heavy duty applications, allows 150% of I_{Hd} for 1 minute every 10 minutes at +50 °C for frames R0 to R2, at +40 °C for frames R3 to R8.

* Continuous current when its used in Heavy duty applications, allows 130% of I_{Hd} for 1 minute every 10 minutes at +50 °C for frames R0 to R2, at +40 °C for frames R3 to R8.

P_{Hd} Typical motor power in heavy-duty use.

Options

–
01 Fieldbus option module

–
02 Optional Assistant control panel

–
03 Optional Bluetooth panel.

–
04 Cold configuration adapter CCA-01

Options	Code	Name	Description
Fieldbus, I/O option	+K454	FPBA-01	Profibus DP
(For RO-R2 frames, only	+K457	FCAN-01	Can Open
2 x DI, 1 x RO and STO will be	+K469	FECA-01	EtherCAT
available in the drive base unit	+K458	FSCA-01	Modbus RTU
if any fieldbus option is	+K473	FENA-11	Ethernet IP, Profinet, Modbus TCP
included.)	+K475	FENA-21	Two port Ethernet/IP™, Modbus TCP, PROFINET I/O
	+L515	BIO-01	BIO-01 I/O extension module. 3 x DI, 1 x AI and 1 x DO1. (Front option can be used with the fieldbus.)
Control Panel	+J400	ACS-AP-S	Assistant control panel with Hindi
(any of this plus code will	+J425	ACS-AP-I	Assistant control panel with Hindi
remove ACS-BP-S, basic panel	+J429	ACS-AP-W	Bluetooth control panel with Hindi
from delivery package)	+J424	RDUM-01	ACS560-01 dummy panel with power LE and PC communication provision
Cables	+J431	BCBL-01	USB to RJ45 PC connectivity cable (RS485)
Printed manuals	+R700	EN	ACS560-01 drives (0.75 to 160 kW) hardware and firmware manual (EN)
	TBD	HI	ACS560-01 drives (0.75 to 160 kW) hardware and firmware manual (HI)
	3AXD500-00010763	DPMP.EXT*	Door mounting kit for the panel (for one drive, contains both DPMP-02 and CDPI-01)
Cabinet door mounting kit	3AUA000-0108878	DPMP-01**	Control panel mounting platform (flush)
	3AXD5000-0009374	DPMP-02**	Control panel mounting platform (surface)
Configuration adapter	3AXD5000-0019865	CCA-01	Cold configurator adapter

*Suitable only for frames R3 - R8 •

**Need RDUM-01 (+ J424) additionally to have complete door mounting kit.



01



02



03



04

–
05 Remote
monitoring tool

–
06 Drive composer
PC tool

Options	Code	Name	Description
External input choke	3AYN477110-CHK1A	CHK-01	For 2.6-4 A drives
	3AYN477110-CH K2A	CHK-02	For 5.6-7.2 A drives
	3AYN477110-CH K3A	CHK-03	For 9.4-126A drives
	3AYN477110-CHK4A	CHK-04	For 17A drives
	3AYN477110-CHK5A	CHK-05	For 25A drives
Brake Resistors	3AYNSBR-RES99	RES99	2.2 kw max power- suitable for 2.6 - 5.6A drives*
	3AYNSBR-RES53	RES53	4 KW max power - suitable for 7.2 - 9.4A drives*
	3AYNSBR-RES32	RES32	7.5 KW max power - suitable for 12.6 - 17A drives*
	3AYNSBR-RES23	RES23	11 KW max power - suitable for 25A drives*
	3AYNSBR-RE516	RES16	15 KW max power - suitable for 33A drives*
	3AYNSBR-RES10	RES10	22 KW max power - suitable for 39 - 46A drives*
	3AVNSBR-RESM99	RESM99	2.2 KW max power - suitable for 2.6 - 5.6A drives**
	3AYNSBR-RESM53	RESM53	4 KW max power - suitable for 7.2 - 9.4A drives**
	3AYNSBR-RESM32	RESM32	7.5 KW max power - suitable for 12.6 - 17A drives**
	3AVNSBR-RESM23	RESM23	11 KW max power - suitable for 25A drives**
	3AYNSBR-RESM16	RESM16	15 KW max power - suitable for 33A drives**
	3AYNSBR-RESM10	RESM	22KW max power - suitable for 39 - 46A drives**
Remote Monitoring	3AUA0000094517	NETA-21	Remote monitoring
PC tools	3AUA0000108087	DCPT-01	Drive composer pro PC tool (single user license)
	3AUA0000145150	DCPT-01	Drive composer pro PC tool (10 users license)
	3AUA0000145151	DCPT-01	Drive composer pro (20 users license)

Note: Drive composer entry (free version) PC tool can be downloaded from <http://abb.com/drives>

*1 mIn/5 min duty cycle - Refer Hardware manual for detailed information on brake resistor selection.

**10 Sec/2 min duty cycle - Refer Hardware manual for detailed information on brake resistor selection



05



06