ABB ACS550 Standard Drive

What is the ACS550 Customer Value?

- **Reduced commissioning and installation costs**
  - Many assistants including Start-up, Drive Optimizer, Real-time Clock, Diagnostics, Maintenance, Serial and PID.
  - Two soft-keys that change according to the operator panel state
  - Field upgradeable firmware
  - Easy connection of cables
  - New conduit box is suitable for US and Europe
  - Built-in brake chopper (10Hp, 230V / 15Hp, 480V and 600 V)
  - Optional plug-in fieldbus modules
  - Reduced size and weight with Patented Swinging Choke (R1-R6) - equivalent to a 5% Line Impedance
  - 3% Impedance AC Line Reactor (R8)
  - Removable operator panel
  - Only Class T fuses required for high speed short circuit protection
  - NEMA 12 enclosure does not require derating
  - Smaller physical size of internal option slots
  - FlashDrop programming (unpowered drive)

- **Reduced energy costs without power factor penalties and correction capacitors**
  - Patented swinging choke provides substantially reduced harmonics, more inductance to the correct load and higher power factor
  - Up to 25% less THD v. traditional DC choke
  - Daily timer controls for time-of-day backoff e.g. start/stop process changes

- **Reduced Drive-Motor system failures and costs**
  - Preventative "Maintenance Assistant" annunciation feature schedules Drive-Motor system maintenance

The ABB ACS550 AC drive combines a sophisticated microprocessor with an advanced IGBT power switching technology to deliver V/Hz, Closed Loop Flux Vector and Sensorless Vector control of AC motors. Its intuitive control panel offers numerous benefits making it the most user-friendly panel in the drives industry. The extensive library of pre-programmed application macros maximizes convenience and minimizes start-up time. This drive can handle the most demanding industrial applications in an efficient, dependable and economic manner

Where can it be used?

The ABB ACS550 standard drive can be used in a wide range of industries. Typical applications include pump, fan and constant torque use, such as conveyors. The ABB ACS550 standard drive is ideal for those situations where there is a need for simplicity to install, commission and use and where customizing or special product engineering is not required.

ABB ACS550 standard drive promises

- Quick delivery
- Easy installation
- Trouble-free start-up
- Intuitive operation

Highlights:

- Advanced control panel permitting intuitive operation
- Patented swinging choke for superior harmonic reduction (R1-R4) and AC line reactor (R5-R8)
- Sensorless vector control
- Integral EMC filter as standard
- Built-in Modbus RTU and numerous internally mountable fieldbus adapters
- FlashDrop
- Coated boards for harsh environments
- UL, cUL, C-Tick and Gost-R approved
- Built-in brake chopper (10Hp, 230V / 15Hp, 480V and 600 V)
- Many assistants including Start-up, Drive Optimizer, Real-time Clock, Diagnostics, Maintenance, Serial and PID
- Seismic Certification to ICC AC-156 Criteria

What are the ACS550's Main Features and Benefits Supporting Customer Value?

Feature	Note	Benefit
Advanced Control Panel	Two soft-keys change according to the state of the panel Built-in "Help" button Real-time clock, allows timed tracing of faults and setting of parameters at various times of day Changed parameter menu	Easy commissioning Fast set-up Easier configuration Rapid fault diagnostics Quick access to recent parameter changes
Brake Chopper	Built-in up to 15 Hp (480 and 600V) and up to 10 Hp (240V)	Reduced installation cost
Chokes	5% equivalent impedance swinging choke-matches the right inductance to the right load, suppressing and reducing harmonics (R1-R4), 3% impedance AC line reactor (R5-R8)	Reduces Total Harmonic Distortion (THD) emissions up to 25%
Connectivity	Simple to install: Easy connection of cables Easy connection of external fieldbus systems through multiple I/Os and plug-in options	Reduced installation time Secure cable connections
Assistants (v3.11a+)	Diagnostic assistant activated when fault occurs Maintenance assistant monitors running hours or motor rotation Start-up assistant guides user through all essential settings without going to parameter list and offers option for parameter backup automatically PID Controller assistant guides user set-up without going to parameter list Real-time clock assistant helps user adjust time and date functions Serial communications assistant provides a convenient way to set-up fieldbus connections Drive optimizer permits user to choose drive set-up for low noise, drive & motor efficiency or motor control accuracy	Quick fault diagnostics Takes care of drive preventative maintenance Easy set-up of parameters Simplifies closed loop process control adjustment Allows quick adjustment of time and date Provides easy set-up of fieldbus connectivity Quickly tailors drive to application
Built-in EMC	Built-in category C2 (1st environment) filter	No need for external filtering
Sensorless vector control	Improve motor control performance	Enables wider range of applications
Switching frequency control	Permits the highest possible switching frequency based on operating and ambient conditions	Considerable motor noise reduction and improved efficiency
Flashdrop	Faster and easier drive set-up and programming	New fast, safe and trouble free method to download parameters available without powering the drive - patented
Coated boards	Longer lifetime in hostile environments. Reduced servicing requirements	Protections against moisture and hostile particles as standard
Flange Mounting Kits	Allows mounting the drive with the heatsink external to a 3rd party enclosure - frame size R1-R6.	Reduces heat and enclosure size

Ratings, Types and Voltages

Type code

This is the unique reference number that clearly indentifies the drive by mounting configuration, power rating and voltage. Once you have selected the type code, the frame size can be used to determine the drives dimensions, shown on the next page.

Voltages

The ACS550 is available in three voltage ranges:

2 = 208 - 240V

4 = 380 - 480V

6 = 500 - 600V

Notes

1 I_{2N}: continuous base current with 110% overload for 1 minute / 10 minutes.

2 I_{2hd}: continuous base current with 150% overload for 1 minute / 10 minutes.

3 180% I_{hd} continuous base current available for 2 seconds / 1 minute.

4 The rated current of the ACS550 must be greater than or equal to the rated motor current to achieve the rated motor power given in the table.

5 All -U1 models come with a conduit box and advanced control panel as standard.

6 Horsepower is based on NEMA motor ratings for most 4-pole motors (1800 rpm). Check motor nameplate current for compatibility.

7 All 230V product can be operated on 230V single-phase power, using a de-rate of the output current of 50%.

8 All -U2 models come standard with US conduit openings, top entry / top exit, common mode filter for drives larger than 200 HP, fused disconnect and extended enclosure with advanced control panel.

Type Code UL Type 1 NEMA 1 (5,8)	Nominal Ratings				Frame Size
	Normal Duty (CT) (110% I_{2N})		Heavy Duty (CT) (150% I_{2hd})		
	I_{2N} A (1,7)	P_N HP (4,6)	I_{2hd} A (2,3,7)	P_{hd} HP (4,6)	
ACS550-U1-04A6-2	4.6	1.0	3.5	0.75	R1
ACS550-U1-06A6-2	6.6	1.5	4.6	1.0	R1
ACS550-U1-07A5-2	7.5	2.0	6.6	1.5	R1
ACS550-U1-012A-2	11.8	3.0	7.5	2	R1
ACS550-U1-017A-2	16.7	5.0	11.8	3	R1
ACS550-U1-024A-2	24.2	7.5	16.7	5	R2
ACS550-U1-031A-2	30.8	10	24.2	7.5	R2
ACS550-U1-046A-2	46.2	15	30.8	10	R3
ACS550-U1-059A-2	59.4	20	46.2	15	R3
ACS550-U1-075A-2	74.8	25	59.4	20	R4
ACS550-U1-088A-2	88	30	74.8	25	R4
ACS550-U1-114A-2	114	40	88	30	R4
ACS550-U1-143A-2	143	50	114	40	R6
ACS550-U1-178A-2	178	60	150	50	R6
ACS550-U1-221A-2	221	75	178	60	R6
ACS550-U1-248A-2	248	100	192	75	R6
ACS550-U1-03A3-4	3.3	1.5	2.4	1	R1
ACS550-U1-04A1-4	4.1	2	3.3	1.5	R1
ACS550-U1-06A9-4	6.9	3	5.4	2	R1
ACS550-U1-08A8-4	8.8	5	6.9	3	R1
ACS550-U1-012A-4	11.9	7.5	8.8	5	R1
ACS550-U1-015A-4	15.4	10	11.9	7.5	R2
ACS550-U1-023A-4	23	15	15.4	10	R2
ACS550-U1-031A-4	31	20	23	15	R3
ACS550-U1-038A-4	38	25	31	20	R3
ACS550-U1-045A-4	44	30	38	25	R3
ACS550-U1-059A-4	59	40	44	30	R4
ACS550-U1-072A-4	72	50	59	40	R4
ACS550-U1-078A-4	77	60	65	50	R4
ACS550-U1-097A-4	96	75	77	60	R4
ACS550-U1-125A-4	124	100	96	75	R5
ACS550-U1-157A-4	157	125	124	100	R6
ACS550-U1-180A-4	180	150	156	125	R6
ACS550-U1-246A-4	245	200	192	150	R6
ACS550-U2-316A-4	316	250	240	200	R8
ACS550-U2-368A-4	368	300	302	250	R8
ACS550-U2-414A-4	414	350	368	300	R8
ACS550-U2-486A-4	486	400	414	350	R8
ACS550-U2-526A-4	526	450	477	400	R8
ACS550-U2-602A-4	602	500	515	450	R8
ACS550-U2-645A-4	645	550	590	500	R8
ACS550-U1-02A7-6	2.7	2	2.4	1.5	R2
ACS550-U1-03A9-6	3.9	3	2.7	2.0	R2
ACS550-U1-06A1-6	6.1	5	3.9	3.0	R2
ACS550-U1-09A0-6	9	7.5	6.1	5.0	R2
ACS550-U1-011A-6	11	10	9	7.5	R2
ACS550-U1-017A-6	17	15	11	10	R2
ACS550-U1-022A-6	22	20	17	15	R3
ACS550-U1-027A-6	27	25	22	20	R3
ACS550-U1-032A-6	32	30	27	25	R4
ACS550-U1-041A-6	41	40	32	30	R4
ACS550-U1-052A-6	52	50	41	40	R4
ACS550-U1-062A-6	62	60	52	50	R4
ACS550-U1-077A-6	77	75	62	60	R6
ACS550-U1-099A-6	99	100	77	75	R6
ACS550-U1-125A-6	125	125	99	100	R6
ACS550-U1-144A-6	144	150	125	125	R6

Construction

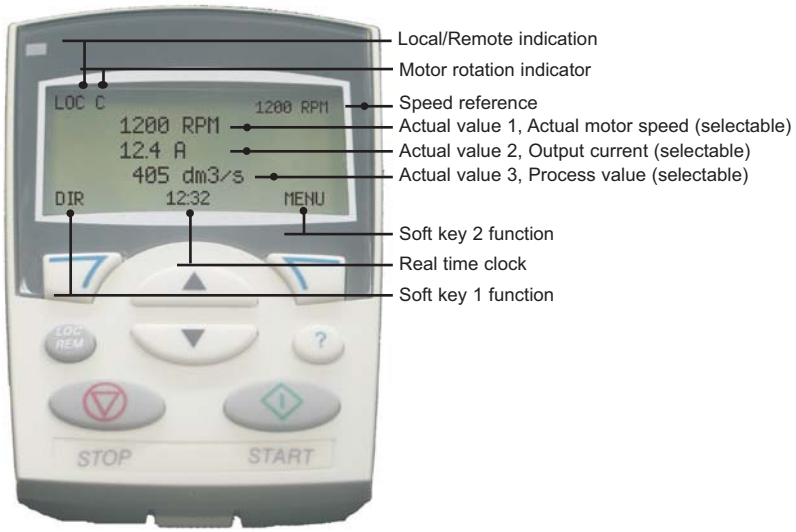
"U1" within the type code indicates the drive mounting configuration. U1 models are wall-mounted, while "U2" models are free-standing with an extended enclosure and fused disconnect. Choose the correct one for your needs from the table below:

U1	U2
■ Wall mounted, frame size R1-R6 ■ 0.75 - 200 HP ■ UL Type 1 (IP21) NEMA 1 or UL Type 12 (IP54) NEMA 12 ■ Built-in EMC filter ■ Standard software ■ Built-in Modbus RTU interface ■ Cable connection box ■ Brake chopper in frame sizes R1-R2 ■ Advanced control panel ■ Swinging choke (Frames R1-R6) ■ AC Reactor (Frame R8)	■ Free standing, frame size R8 ■ 250 - 550Hp ■ UL Type 1 (IP21) NEMA 1 ■ Standard software ■ Built-in Modbus RTU interface ■ Free-standing with extended enclosure and fused disconnect ■ Advanced control panel ■ AC Reactor (Frame R8)

Advanced Control Panel

For easy drive programming, a detachable, multilingual alphanumeric advanced control panel is delivered as standard. The control panel has various assistants and built-in help functions to guide the user. It includes a real time clock, which can be used during fault logging and in controlling the drive, such as start/stop and maintenance reminders. The control panel can be used for copying parameters for back up or for downloading to another drive. A large graphical display and soft keys make it extremely easy to navigate.

Name	Function
Start	Initiates operation of drive
Stop	Ceases operation of drive
Up	Changes parameters and their value/ increases reference
Down	Changes parameters and their value/ decreases reference
Loc/Rem	Changes drive state from local control to remote control (I/O or other external source)
HELP	Built-in "Help" button
Soft key 1	Function changes according to state of panel
Soft key 2	Function changes according to state of panel



Options

Control Interfaces

How to select options

The options shown below are available for use with the ACS550. Each item has a 4-digit option code, which is shown in the table below. This code is added to the end of the type code above using a '+'. Ordering options using the plus option code provides a factory installed option, while using the field kit code provides a field installable kit (-KIT).

Available options

Plus Option Code	Description	Field Kit Code
Protection class		
+B055	UL Type 12 (IP54) NEMA 12	
Slot 1 Options		
+L511	Relay Output Extension	OREL-01-KIT
+L502	Pulse Encoder Interface	OTAC-01-KIT
Slot 2 Options		
+L512	115/230V Digital Input Interface	OHDI-01-KIT
+K451	DeviceNet	RDNA-01-KIT
+K454	Profibus-DP	RPBA-01-KIT
+K462	ControlNet	RCNA-01-KIT
+K466	EtherNet/IP and Modbus/TCP	RETA-01-KIT
+K457	CANopen	RCAN-01-KIT
+K467	PROFINET and Modbus/TCP	RETA-02-KIT

NOTE:
- Only one option can be installed in each option slot.
- Embedded Modbus RTU

Panel Mounting Kit (OPMP-01)

The panel mounting kit, OPMP-01, enables mounting of control panels on cabinet doors. This kit includes a 10 ft (3 m) extension cable, a gasket, mounting screws and a mounting template.

ACS/H-CP-EXT: permits permanent mounting of panel to external surface of NEMA 1 or NEMA 12 enclosures.

ACS/H-CP-EXT-IP66: permits permanent mounting of panel to external surface of NEMA 4X enclosures.

DriveWindow Light 2 (3AFE64532871)

DriveWindow Light 2 is a PC software used for rapid commissioning, operating and programming of drives. It has features for programming, monitoring, troubleshooting and maintenance.

It is also a set-up and control tool which is Win98, WinNT, Win2000 and WinXP compatible.

DriveWindow Light 2 operates both off- and on-line. No additional PC hardware is required. It uses the PC's RS-232 port. It is also compatible with drive types ACS350, ACS800, DCS400 and DCS800.

DriveWindow Light 2 features

- Graphical start-up wizards
- Off- and on-line viewing and changing of drive parameters
- Backup and restore parameters. In a fault situation, the parameters can be reloaded resulting in time savings
- Graphical monitoring of actual signal values
- I/O mapping table
- Control of the drive

DrivePM

DrivePM (Parameter Manager) is a software tool designed to create, edit and copy parameter sets included with a FlashDrop. For each parameter, and parameter group, the user can change the default or hide the parameter or entire group. FlashDrop does not require the drive to have power applied. FlashDrop is also compatible with the ACS150 and ACS350.

FlashDrop MFDT-01

FlashDrop is a powerful palm-sized tool for fast and easy parameter selecting and setting. This tool can be used to download parameters to a drive in less than three seconds. Using this tool, it is possible to hide selected parameters to protect the machine. Only parameters needed in the application are shown. FlashDrop does not require the drive to be powered. The MFDT-01 includes Drive PM (Drive Parameter Manager) software tool to create, edit and copy parameter sets.

FlashDrop (MFDT-01)