



Low voltage AC drives

ABB micro drives

ACS150

0.5 to 5 hp/0.37 to 4 kW

Catalog

Power and productivity
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Introduction to ACS150

ABB micro drives

ACS150 variable frequency drives feature an integrated control panel with LCD display and built-in speed potentiometer. For easy setup and commissioning, the drives include a variety of predefined I/O configuration macros including: ABB standard, 3-wire control, Digital input control, PID control, Hand/ Auto control, and a PLC interface. User defined macros can also be created. The ACS150 drive has an extensive list of programmable drive parameters that are used to achieve high performance with maximum versatility in many applications.

ACS150 micro drives are compact with multiple mounting positions and options. The built-in DIN rail mounting capability makes them ideal for panel builders. Rapid programming and commissioning are possible using the on board setup macros. The DrivePM (Drive Parameter Manager) software tool can be used to create, edit, and copy parameter sets using the MFDT-01 FlashDrop tool.

Flashdrop, an optional drive configuration tool, can be used to quickly and easily configure spares or large volumes of unpowered drives using the connection port on the front panel. FlashDrop stores up to 20 different parameter sets and can copy parameters from one drive to another, or between a PC and a drive.

The ACS150 drive is ideal for panel builders and OEM's needing a micro drive with low cost, flexible mounting options, and rapid parameter setup.

Highlights

- Power range: 0.50 to 5 Hp, single and three phase input
- 150% peak overload capacity
- Worldwide availability and support
- User-friendly control panel with LCD display and integrated potentiometer
- Multiple mounting positions
- PID control
- Integrated 2nd environment EMC filter with disconnect option
- Built-in brake chopper
- Flashdrop tool for fast commissioning
- Conformally coated boards
- Common height and depth across the product line, for flexible installation
- Wall or DIN rail mountable
- Easy access to power and I/O connections for rapid installation
- Selection options for input reactors, output filters, & braking resistors
- UL listing includes use of ABB manual motor protectors for branch circuit protection instead of fuses

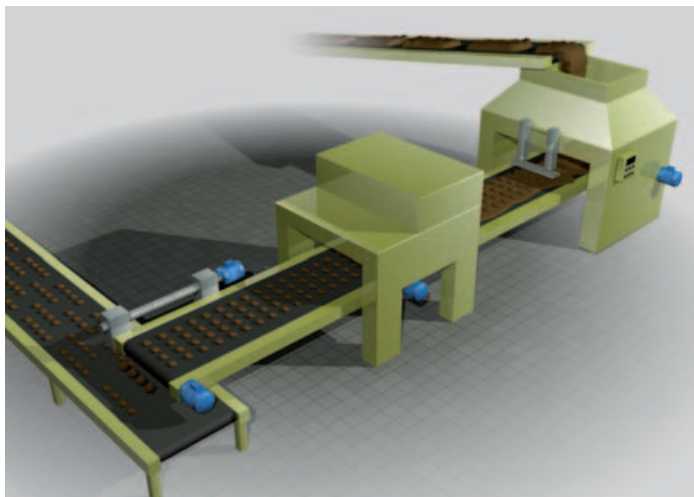
Feature	Advantage	Benefit
Worldwide availability and service	Drives are available worldwide and permanently stocked in four regions. Dedicated global service and support network that is one of the widest in the industry.	Fast and reliable delivery with dedicated support to any country in the world.
User-friendly LCD control panel and integrated potentiometer	Clear alphanumeric display. Easy setup and use.	Time savings due to quick setup and simple configuration.
Flexible mounting alternatives	Screw or DIN rail mounting, sideways or side-by-side.	One drive type can be used in various designs, saving installation costs and time.
Integrated EMC filter	High electromagnetic compatibility.	Low EMC emissions in selected environments.
Built-in brake chopper as standard	No need for an external brake chopper.	Space savings, reduced installation cost.
FlashDrop tool	Faster and easier drive setup and commissioning for volume manufacturing and maintenance. The FlashDrop tool enables both downloading and uploading drive parameters.	Fast, safe and trouble-free parameter setting without the need to power-up the drive. Patented.
PID control	Varies the drive's performance according to the need of the application.	Enhances production output, stability and accuracy.
Coated boards	Board coating protects the electronics from hazards including static discharge and airborne contaminants, including moisture.	Reduces maintenance due to good protection of electronics components.

Easily integrated drives for a wide range of applications

ABB micro drives bring speed control benefits to a wide variety of applications.

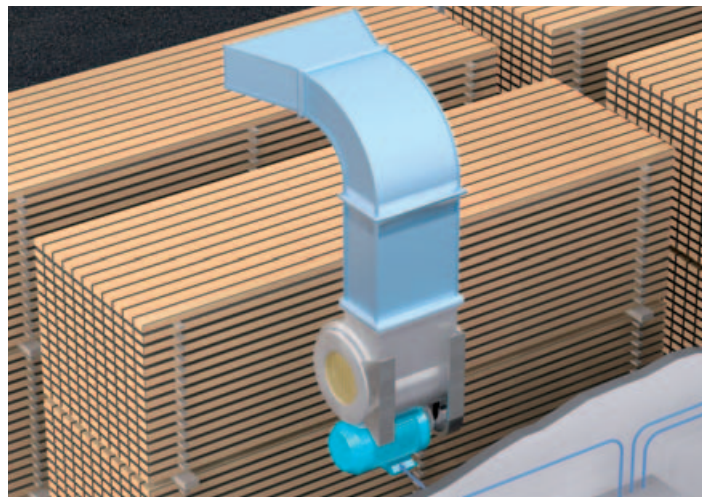
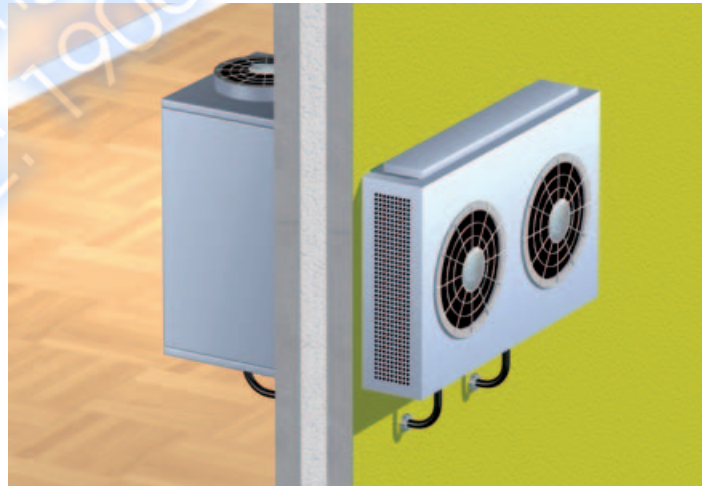
In mixing applications the drive provides high starting torque which benefits the start of the mixing operation. The silent operation mode adjusts the switching frequency of the drive to a higher level after the high-torque start, resulting in lower audible noise. The FlashDrop tool provides a quick and safe way to configure multiple drives for identical mixer applications.

In conveyors the belt speed can be controlled using a drive and a motor. Production lines often have multiple stages, including conveyors, which need to be efficiently linked with each other to provide high production output. A drive provides smooth start and stop of the conveyor, thereby reducing mechanical stress and lowering maintenance costs.



A heat pump system consists of an indoor unit with fan and an outdoor unit with a compressor and a blower. The heat pump cools indoor environment by gathering heat from the air, and transferring the heat outside. The outdoor unit uses the compressor and the blower to dissipate the heat. The cooled air is blown indoors by fans located in the indoor unit. Drive allows the user to variably control the cooling power based on customer request. AC drives optimize systems' energy efficiency and smoothens system operation.

Fans are used for process cooling and ventilation in industrial, commercial and domestic environments. Using a drive to control air flow enables energy savings compared to mechanical flow control methods. An ABB drive has integrated PID control which provides optimal air flow by adjusting the fan speed based on a given reference value. Compact size and various mounting methods enable flexible system design.



Ratings, types and dimensions

Type designation

In column 4 on the right is the unique reference number that clearly identifies your drive by power rating and frame size. Once you have selected the type designation, the frame size (column 5) can be used to determine the drives dimensions, shown below.

Voltages

ACS150 is available in two voltage ranges:

2 = 200 to 240 V

4 = 380 to 480 V

Insert either “2” or “4”, depending on your chosen voltage, into the type designation shown on the right.

Construction

The second portion of the type designation – “01U” or “03U” – describes the input voltage and status of the built-in EMC filter:

01 = Single phase input

03 = Three phase input

U = EMC filter installed but disconnected. This is the standard configuration for drives stocked in the U.S. The “U” indicates that a plastic screw has been inserted in the “EMC” location on the side of the drive. To ground the EMC filter and make it active, remove the plastic screw and replace it with the metal screw provided in the parts bag.

Cabinet-mounted drives (UL open)

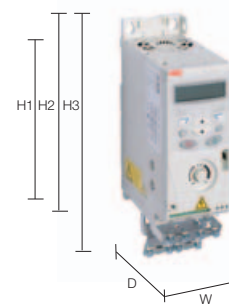
Frame size	IP20 UL open											
	H1		H1		H3		W		D		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
R0	6.65	169	7.95	202	9.4	239	2.8	70	5.6	142	2.5	1.1
R1	6.65	169	7.95	202	9.4	239	2.8	70	5.6	142	2.9	1.3
R2	6.65	169	7.95	202	9.4	239	4.1	105	5.6	142	3.3	1.5

Wall-mounted drives (NEMA 1)

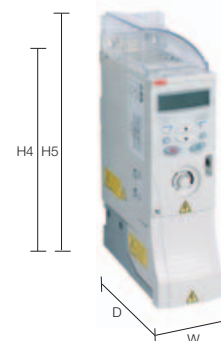
Frame size	NEMA 1											
	H4		H5		W		D		Weight			
	in	mm	in	mm	in	mm	in	mm	lb	kg		
R0	10.12	257	11	280	2.8	70	5.6	142	3.3	1.5		
R1	10.12	257	11	280	2.8	70	5.6	142	3.8	1.7		
R2	10.12	257	11.1	282	4.1	105	5.6	142	4.2	1.9		

Ratings			Type designation	Frame size
P_N	P_N	I_{2N}		
hp	kW	A		
1-phase AC supply, 200 to 240 V				
0.5	0.37	2.4	ACS150-01U-02A4-2	R0
1	0.75	4.7	ACS150-01U-04A7-2	R1
1.5	1.1	6.7	ACS150-01U-06A7-2	R1
2	1.5	7.5	ACS150-01U-07A5-2	R2
3	2.2	9.8	ACS150-01U-09A8-2	R2
3-phase AC supply, 200 to 240 V				
0.5	0.37	2.4	ACS150-03U-02A4-2	R0
0.75	0.55	3.5	ACS150-03U-03A5-2	R0
1	0.75	4.7	ACS150-03U-04A7-2	R1
1.5	1.1	6.7	ACS150-03U-06A7-2	R1
2	1.5	7.5	ACS150-03U-07A5-2	R1
3	2.2	9.8	ACS150-03U-09A8-2	R2
3-phase AC supply, 380 to 480 V				
0.5	0.37	1.2	ACS150-03U-01A2-4	R0
0.75	0.55	1.9	ACS150-03U-01A9-4	R0
1	0.75	2.4	ACS150-03U-02A4-4	R1
1.5	1.1	3.3	ACS150-03U-03A3-4	R1
2	1.5	4.1	ACS150-03U-04A1-4	R1
3	2.2	5.6	ACS150-03U-05A6-4	R1
5	4	8.8	ACS150-03U-08A8-4	R1

Note: The European variant of the ACS150 drive may have an “E” in the type designation. This indicates the drive has been provided with the metal grounding screw inserted in the “EMC” location.



H1 = Height without fastenings and clamping plate.
H2 = Height with fastenings but without clamping plate.
H3 = Height with fastenings and clamping plate.
W = Width
D = Depth



H4 = Height with fastenings and NEMA 1 connection box.
H5 = Height with fastenings, NEMA 1 connection box and hood.
W = Width
D = Depth

Technical data

Mains connection

Voltage and power range	1-phase, 200 to 240 V $\pm$ 10% 0.5 to 3 hp (0.37 to 2.2 kW) 3-phase, 200 to 240 V $\pm$ 10% 0.5 to 3 hp (0.37 to 2.2 kW) 3-phase, 380 to 480 V $\pm$ 10% 0.5 to 5 hp (0.37 to 4 kW)
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Frequency	48 to 63 Hz
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Motor connection

Voltage	3-phase, from 0 to U_{supply}
Frequency	0 to 500 Hz
Continuous loading capability (constant torque at a max. ambient temperature of 40 °C)	Rated output current I_{2N}
Overload capability (at a max. ambient temperature of 40 °C)	At heavy duty use $1.5 \times I_{2N}$ for 1 minute every 10 minutes At start $1.8 \times I_{2N}$ for 2 s
Switching frequency Default Selectable	4 kHz 4 to 16 kHz with 4 kHz steps
Acceleration time	0.1 to 1800 s
Deceleration time	0.1 to 1800 s
Braking	Built-in brake chopper as standard
Motor control method	Scalar U/f

Environmental limits

Ambient temperature	14 to 104 °F (-10 to 40 °C), no frost allowed, 122 °F (50 °C) with 10% derating
Altitude Output current	Rated current available at 0 to 3281 ft (0 to 1000 m) reduced by 1% per 328 ft (100 m) over 3281 to 6562 ft (1000 to 2000 m)
Relative humidity	Lower than 95% (without condensation)
Degree of protection	IP20/Optional NEMA 1 enclosure
Enclosure colour	NCS 1502-Y, RAL 9002, PMS 420 C
Contamination levels	IEC 721-3-3 No conductive dust allowed
Transportation	Class 1C2 (chemical gases)
Storage	Class 1S2 (solid particles) Class 2C2 (chemical gases)
Operation	Class 2S2 (solid particles) Class 3C2 (chemical gases) Class 3S2 (solid particles)

Input reactor and output filter

AC input reactor	External option. For reducing THD in partial loads and to comply with EN 61000-3-2.
dv/dt output filter	External option. For use with longer motor cables

Programmable control connections

One analog input	
Voltage signal	0 (2) to 10 V, $R_{\text{in}} > 312 \text{ k}\Omega$
Current signal	0 (4) to 20 mA, $R_{\text{in}} = 100 \Omega$
Potentiometer reference value	10 V $\pm$ 1% max. 10 mA, $R < 10 \text{ k}\Omega$
Resolution	0.1%
Accuracy	$\pm$ 2%
Auxiliary voltage	24 V DC $\pm$ 10%, max. 200 mA
Five digital inputs	12 to 24 V DC with internal or external supply, PNP and NPN, pulse train 0 to 16 kHz
Input impedance	2.4 k Ω
One relay output	
Type	NO + NC
Maximum switching voltage	250 V AC/30 V DC
Maximum switching current	0.5 A/30 V DC; 5 A/230 V AC
Maximum continuous current	2 A rms

Product compliance

Low voltage Directive 2006/95/EC with supplements
Machinery Directive 2006/42/EC
EMC Directive 2004/108/EC with supplements
Quality assurance system ISO 9001
Environmental system ISO 14001
UL, cUL, CE, C-Tick and EAC (replaces GOST-R) approvals
RoHS compliant

Control connections and interfaces

Application macros

Application macros are preprogrammed parameter sets. When starting up the drive, the user typically selects one of the macros that is best suited for the application. The diagram below gives an overview of ACS150 control connections and shows the default I/O connections for the ABB standard macro.

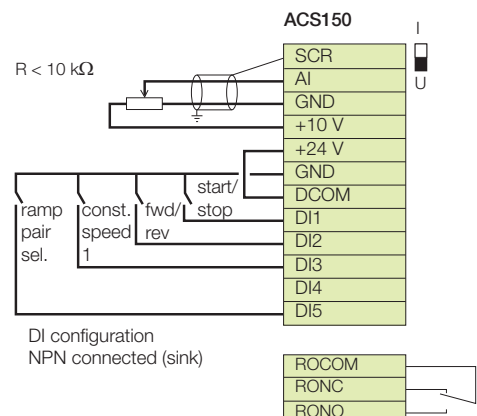
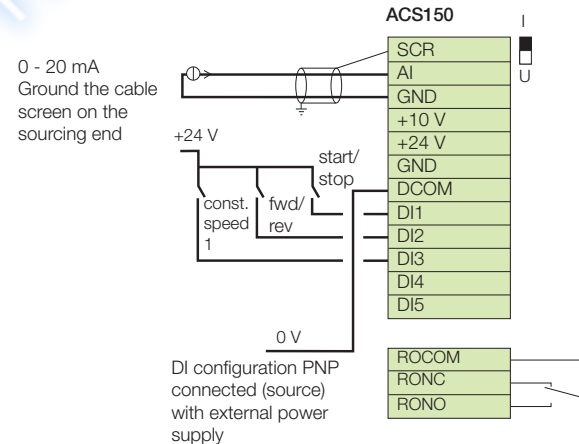
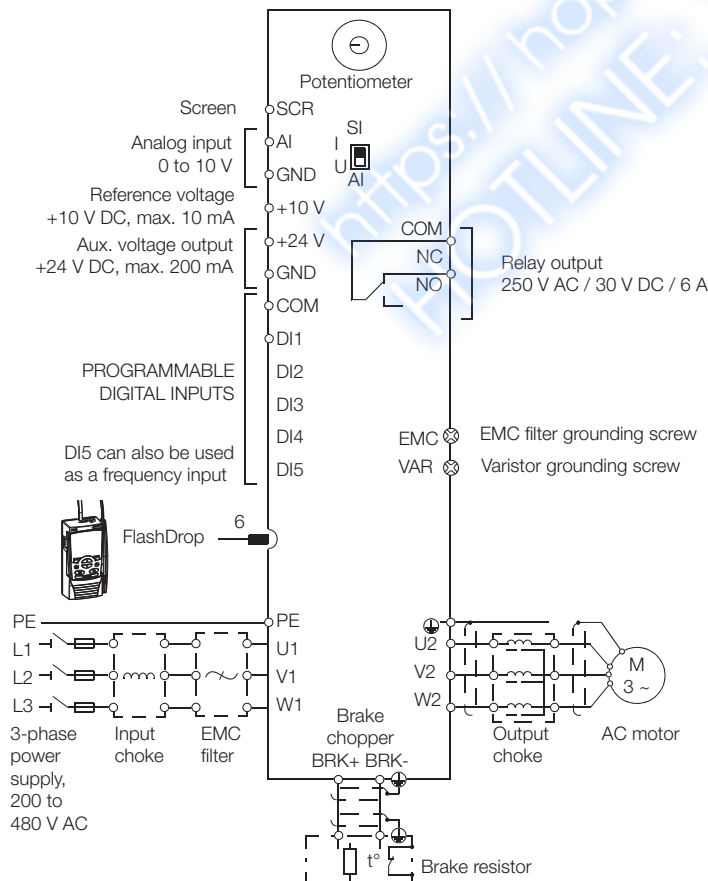
ABB micro drives have six standard macros:

- ABB standard macro
- 3-wire macro
- Alternate macro
- Motor potentiometer macro
- Hand/auto macro
- PID control macro

In addition to the standard macros the user can create three user macros. The user macro allows the user to save the parameter settings for later use.



Typical I/O connections



Cooling

Cooling

ACS150 drives in frame sizes R1 & R2 include cooling fans as standard. The R0 frame size drives do not have an internal cooling fan and rely on natural convection to cool the internal components. The cooling air must be free from corrosive substances, excessive moisture, dust, and dirt.

If the ambient air exceeds the maximum rated ambient of 40 °C, the output amps of the drive must be de-rated. This derating is 1% of the rated output amps for every 1 °C above 40°C to a maximum of 50 °C. (See the Technical data – Environmental limits section of this catalog or the User Manual.)

For locations where the ambient could exceed 50 °C, the drive should be mounted in a properly sized enclosure with additional cooling provided.

Cooling air flow

Type designation	Frame size	Heat dissipation		Air flow	
		[W]	BTU/hr	ft³/min	m³/h
1-phase AC supply, 200 to 240 V					
ACS150-01U-02A4-2	R0	25	85	— ^{*)}	— ^{*)}
ACS150-01U-04A7-2	R1	46	157	14	24
ACS150-01U-06A7-2	R1	71	242	14	24
ACS150-01U-07A5-2	R2	73	249	12	21
ACS150-01U-09A8-2	R2	96	328	12	21
3-phase AC supply, 200 to 240 V					
ACS150-03U-02A4-2	R0	19	65	— ^{*)}	— ^{*)}
ACS150-03U-03A5-2	R0	31	106	— ^{*)}	— ^{*)}
ACS150-03U-04A7-2	R1	38	130	14	24
ACS150-03U-06A7-2	R1	60	205	14	24
ACS150-03U-07A5-2	R1	62	212	12	21
ACS150-03U-09A8-2	R2	83	283	12	21
3-phase AC supply, 380 to 480 V					
ACS150-03U-01A2-4	R0	11	38	— ^{*)}	— ^{*)}
ACS150-03U-01A9-4	R0	16	55	— ^{*)}	— ^{*)}
ACS150-03U-02A4-4	R1	21	72	8	13
ACS150-03U-03A3-4	R1	31	106	8	13
ACS150-03U-04A1-4	R1	40	137	8	13
ACS150-03U-05A6-4	R1	61	208	11	19
ACS150-03U-08A8-4	R1	94	321	14	24

*) Frame size R0 with free convection cooling.

Free space requirements

Frame size	Space above		Space below		Space on left/right	
	in	mm	in	mm	in	mm
All frame sizes	2.95	75	2.95	75	0	0

Fuses and Circuit Protection

Fuses or manual motor protectors for circuit protection

Standard fuses or manual motor protectors can be used with ACS150 drives for branch circuit protection.

Use the following table for selecting the correct fuse or protector for each drive.

Manual motor protectors

ABB UL file E211945 Volume 1, Section 4 lists the ABB Type E manual motor protectors MS132 & S1-M3-25, MS451-xxE, MS495-xxE as an alternate to UL classified fuses as a means of branch circuit protection. This is in accordance with the National Electrical Code (NEC).

When the correct ABB Type E manual motor protector is selected from the table and used for branch circuit protection the drive is suitable for use in a circuit capable of delivering not more than 65 kA RMS symmetrical amperes at the drive maximum rated voltage.

Drives with and without NEMA 1 enclosure kits are included in the UL file. The MMP selections in the table are also valid for drives having a NEMA 1 enclosure kit installed.

Type Code	Frame	IEC fuses	UL fuses	Manual Motor Protectors		
		Fuse Type gG*	UL Class T or CC (600V)	MMP Type E ^{1, 2}	MMP Trip Current Setting	Minimum Enclosure Vol. ⁵
		[A]	[A]		[A]	[cu in]
1 Phase 200 to 240 V						
ACS150-01U-02A4-2	R0	10	10	MS132-6.3 & S1-M3-25 ³	6.1	1152
ACS150-01U-04A7-2	R1	16	20	MS451-16E	11.4	1152
ACS150-01U-06A7-2	R1	20	25	MS451-20E	16.1	1152
ACS150-01U-07A5-2	R2	25	30	MS451-20E	16.8	-
ACS150-01U-09A8-2	R2	35	35	MS451-25E	21.0	-
3 Phase 200 to 240 V						
ACS150-03U-02A4-2	R0	10	10	MS132-6.3 & S1-M3-25 ³	4.3	1152
ACS150-03U-03A5-2	R0	10	10	MS132-6.3 & S1-M3-25 ³	6.1	1152
ACS150-03U-04A7-2	R1	10	15	MS132-10 & S1-M3-25 ³	7.6	1152
ACS150-03U-06A7-2	R1	16	15	MS451-16E	11.8	1152
ACS150-03U-07A5-2	R1	16	15	MS451-16E	12.0	1152
ACS150-03U-09A8-2	R2	16	20	MS451-16E	14.3	-
3 Phase 440, 460, 480 V ⁴						
ACS150-03U-01A2-4	R0	10	10	MS132-2.5 & S1-M3-25 ³	1.8	1152
ACS150-03U-01A9-4	R0	10	10	MS132-4.0 & S1-M3-25 ³	3.0	1152
ACS150-03U-02A4-4	R1	10	10	MS132-4.0 & S1-M3-25 ³	3.4	1152
ACS150-03U-03A3-4	R1	10	10	MS132-6.3 & S1-M3-25 ³	5.0	1152
ACS150-03U-04A1-4	R1	16	15	MS132-6.3 & S1-M3-25 ³	5.8	1152
ACS150-03U-05A6-4	R1	16	15	MS132-10 & S1-M3-25 ³	8.0	1152
ACS150-03U-07A3-4	R1	16	20	MS132-10 & S1-M3-25 ³	9.7	1152
ACS150-03U-08A8-4	R1	20	25	MS451-16E	11.3	1152

* According to the IEC-60269 standard

¹⁾ All manual motor protectors listed are Type E self-protected up to 65kA. See ABB publication AC1010 for complete technical data on ABB Type E manual motor protectors.

²⁾ Manual motor protectors may require adjusting the trip limit from the factory setting at or above the drive input Amps to avoid nuisance tripping. If the manual motor protector is set to the maximum current trip level and nuisance tripping is occurring, then select the next size MMP. (MS132-10 is the highest size in MS132 frame size to meet Type E at 65kA; the next size up is the MS451-16E)

³⁾ Requires use of the S1-M3-25 line side feeder terminal with the manual motor protector to meet Type E self-protection class.

⁴⁾ 480Y/277V only

⁵⁾ Minimum enclosure volume is specified in the UL listing for R0 & R1 frame drives when applied with the ABB Type E MMP shown in the table. ACS150 drives are intended to be mounted in an enclosure unless a NEMA 1 kit is added.

For all drives, the enclosure must be sized to accommodate the specific thermal considerations of the application as well as provide free space for cooling. See the applicable ABB User Manual for free space requirements.

To obtain the most current product documentation go to www.abb.com and select Offerings/Low Voltage AC Drives to navigate to the complete User Manual for the appropriate drive.

Options

FlashDrop tool

FlashDrop is a powerful palm sized tool for fast and easy parameter selecting and setting. It gives the possibility to hide selected parameters to protect the machine. Only the parameters needed in the application are shown. The tool can copy parameters between two drives or between a PC and a drive. All the above can be done without a power connection to the drive – in fact, it is not even necessary to unpack the drive.

DrivePM

DrivePM (Drive parameter manager) is a tool to create, edit and copy parameter sets for FlashDrop. For each parameter/group the user has a possibility to hide it, which means that the drive user does not see the parameter/group at all.

DrivePM requirements

- Windows 2000/XP/Vista/Windows 7
- Free serial port from a PC

FlashDrop package includes

- FlashDrop tool
- DrivePM software on a CD-ROM
- User's manual in pdf-format on the previous CD-ROM
- Cable for connection between the PC and FlashDrop
- Battery charger

Protection class NEMA 1

The NEMA 1 kit includes a connection box for finger protection, conduit tube installation, and a hood for protection against dirt and dust.

Brake resistors

ACS150 is delivered with an integrated brake chopper as standard. Therefore no additional space or installation time is needed. The brake resistor is selected using the following pages. For more information about the selection of brake resistors, see the ACS150 user's manual.



Braking Resistors

Brake chopper (transistor)

ACS150 drives include a built-in brake chopper as standard. No assembly of separate option kits need to be selected, no additional panel space is required, or additional installation time is needed to include a brake chopper. Brake resistors are selected using the following tables. Either compact CR

type resistors (for smaller drives) or standard enclosed resistor packages are available. For more information regarding the selection of the braking resistor and the limits of the built-in brake chopper, see the ACS150 User Manual.

Brake resistor selection table

Single Phase 200-240 V applications, stopping duty only

Type CR Resistors

Duty cycle		3 sec on/27 sec off			10 sec on/50 sec off			30 sec on/180 sec off			60 sec on/180 sec off		
ACS-150-01U-	HP ND	CR Resistor Part No.	Ohms	Watts	CR Resistor Part No.	Ohms	Watts	CR Resistor Part No.	Ohms	Watts	CR Resistor Part No.	Ohms	Watts
02A4-2	0.5	P14494-CR-02	200	100	P14494-CR-02	200	100	P14494-CR-02	200	100	P14494-CR-02	200	100
04A7-2	1	P14494-CR-04	100	100	P14494-CR-04	100	100	P14494-CR-11	100	150	P14494-CR-16	100	200
06A7-2	1.5	P14494-CR-04	100	100	P14494-CR-11	100	150	P14494-CR-16	100	200	P14494-CR-22	100	300
07A5-2	2	P14494-CR-04	100	100	P14494-CR-16	100	200	P14494-CR-22	100	300	P14494-CR-30	100	400
09A8-2	3	P14494-CR-12	50	150	P14494-CR-24	50	300	P14494-CR-32	50	400	-	-	-

Standard Enclosed Resistor Packages

Duty cycle		3 sec on/27 sec off			10 sec on/50 sec off			30 sec on/180 sec off			60 sec on/180 sec off		
ACS-150-01U-	HP ND	Enclosed Res Part No.	Ohms	Watts	Enclosed Res Part No.	Ohms	Watts	Enclosed Res Part No.	Ohms	Watts	Enclosed Res Part No.	Ohms	Watts
02A4-2	0.5	P14494-19	75	300	P14494-19	75	300	P14494-19	75	300	P14494-19	75	300
04A7-2	1	P14494-24	45	300	P14494-24	45	300	P14494-24	45	300	P14494-24	45	300
06A7-2	1.5	P14494-24	45	300	P14494-24	45	300	P14494-24	45	300	P14494-24	45	300
07A5-2	2	P14494-31	35	300	P14494-31	35	300	P14494-31	35	300	P14494-32	35	820
09A8-2	3	P14494-31	35	300	P14494-31	35	300	P14494-32	35	820	P14494-32	35	820

Three Phase 200-240 V applications, stopping duty only

Type CR Resistors

Duty cycle		3 sec on/27 sec off			10 sec on/50 sec off			30 sec on/180 sec off			60 sec on/180 sec off		
ACS-150-03U-	HP ND	CR Resistor Part No.	Ohms	Watts	CR Resistor Part No.	Ohms	Watts	CR Resistor Part No.	Ohms	Watts	CR Resistor Part No.	Ohms	Watts
02A4-2	0.5	P14494-CR-02	200	100	P14494-CR-02	200	100	P14494-CR-02	200	100	P14494-CR-02	200	100
03A5-2	0.75	P14494-CR-04	100	100	P14494-CR-04	100	100	P14494-CR-04	100	100	P14494-CR-11	100	150
04A7-2	1	P14494-CR-04	100	100	P14494-CR-04	100	100	P14494-CR-11	100	150	P14494-CR-16	100	200
06A7-2	1.5	P14494-CR-04	100	100	P14494-CR-11	100	150	P14494-CR-16	100	200	P14494-CR-22	100	300
07A5-2	2	P14494-CR-06	50	100	P14494-CR-18	50	200	P14494-CR-24	50	300	P14494-CR-32	50	400
09A8-2	3	P14494-CR-12	50	150	P14494-CR-24	50	300	P14494-CR-32	50	400	-	-	-

Standard Enclosed Resistor Packages

Duty cycle		3 sec on/27 sec off			10 sec on/50 sec off			30 sec on/180 sec off			60 sec on/180 sec off		
ACS-150-03U-	HP ND	Enclosed Res Part No.	Ohms	Watts	Enclosed Res Part No.	Ohms	Watts	Enclosed Res Part No.	Ohms	Watts	Enclosed Res Part No.	Ohms	Watts
02A4-2	0.5	P14494-19	75	300	P14494-19	75	300	P14494-19	75	300	P14494-19	75	300
03A5-2	0.75	P14494-19	75	300	P14494-19	75	300	P14494-19	75	300	P14494-19	75	300
04A7-2	1	P14494-24	45	300	P14494-24	45	300	P14494-24	45	300	P14494-24	45	300
06A7-2	1.5	P14494-24	45	300	P14494-24	45	300	P14494-24	45	300	P14494-24	45	300
07A5-2	2	P14494-31	35	300	P14494-31	35	300	P14494-31	35	300	P14494-32	35	820
09A8-2	3	P14494-31	35	300	P14494-31	35	300	P14494-32	35	820	P14494-32	35	820

Braking Resistors

Brake resistor selection table

Three Phase 380-480 V applications, stopping duty only

Type CR Resistors

Duty cycle		3 sec on/27 sec off			10 sec on/50 sec off			30 sec on/180 sec off			60 sec on/180 sec off		
ACS-150-03U-	HP ND	CR Resistor Part No.	Ohms	Watts	CR Resistor Part No.	Ohms	Watts	CR Resistor Part No.	Ohms	Watts	CR Resistor Part No.	Ohms	Watts
01A2-4	0.5	P14494-CR-01	500	100	P14494-CR-01	500	100	P14494-CR-01	500	100	P14494-CR-01	500	100
01A9-4	0.75	P14494-CR-01	500	100	P14494-CR-01	500	100	P14494-CR-01	500	100	P14494-CR-07	500	150
02A4-4	1	P14494-CR-02	200	100	P14494-CR-02	200	100	P14494-CR-09	200	150	P14494-CR-14	200	200
03A3-4	1.5	P14494-CR-02	200	100	P14494-CR-09	200	150	P14494-CR-14	200	200	P14494-CR-20	200	300
04A1-4	2	P14494-CR-03	150	100	P14494-CR-15	150	200	P14494-CR-21	150	300	P14494-CR-29	150	400
05A6-4	3	P14494-CR-11	100	150	P14494-CR-22	100	300	P14494-CR-30	100	400	-	-	-
08A8-4	5	P14494-CR-22	100	300	P14494-CR-30	100	400	-	-	-	-	-	-

Standard Enclosed Resistor Packages

Duty cycle		3 sec on/27 sec off			10 sec on/50 sec off			30 sec on/180 sec off			60 sec on/180 sec off		
ACS-150-03U-	HP ND	Enclosed Res Part No.	Ohms	Watts	Enclosed Res Part No.	Ohms	Watts	Enclosed Res Part No.	Ohms	Watts	Enclosed Res Part No.	Ohms	Watts
01A2-4	0.5	P14494-10	350	200	P14494-10	350	200	P14494-10	350	200	P14494-10	350	200
01A9-4	0.75	P14494-11	250	300	P14494-11	250	300	P14494-11	250	300	P14494-11	250	300
02A4-4	1	P14494-11	250	300	P14494-11	250	300	P14494-11	250	300	P14494-11	250	300
03A3-4	1.5	P14494-13	200	300	P14494-13	200	300	P14494-13	200	300	P14494-13	200	300
04A1-4	2	P14494-15	150	300	P14494-15	150	300	P14494-15	150	300	P14494-16	150	600
05A6-4	3	P14494-15	150	300	P14494-15	150	300	P14494-16	150	600	P14494-16	150	600
08A8-4	5	P14494-19	75	300	P14494-20	75	600	P14494-20	75	600	P14494-21	75	1000

Note: To determine resistor type, dimensions and weights refer to Resistor Technical Data Table

Brake resistor technical data

Part Number	Ohms	Watts	Enclosure	Dimensions WxDxH (in)	Weight (lb)	Part Number	Ohms	Watts	Enclosure	Dimensions WxDxH (in)	Weight (lb)
P14494-10	350	200	GCE1	12W x 5D x 5H	8	P14494-CR-07	500	150	CR150	9W x 1.5D x 0.75H	1
P14494-11	250	300	GCE1	12W x 5D x 5H	7	P14494-CR-09	200	150	CR150	9W x 1.5D x 0.75H	1
P14494-13	200	300	GCE1	12W x 5D x 5H	7	P14494-CR-11	100	150	CR150	9W x 1.5D x 0.75H	1
P14494-15	150	300	GCE1	12W x 5D x 5H	7	P14494-CR-12	50	150	CR150	9W x 1.5D x 0.75H	1
P14494-16	150	600	GCE2	12W x 7D x 5H	10	P14494-CR-14	200	200	CR200	6W x 3D x 1.5H	2
P14494-19	75	300	GCE1	12W x 5D x 5H	7	P14494-CR-15	150	200	CR200	6W x 3D x 1.5H	2
P14494-20	75	600	GCE2	12W x 7D x 5H	10	P14494-CR-16	100	200	CR200	6W x 3D x 1.5H	2
P14494-21	75	1000	GCE3	12W x 10D x 5H	13	P14494-CR-18	50	200	CR200	6W x 3D x 1.5H	1
P14494-24	45	300	GCE1	12W x 5D x 5H	7	P14494-CR-20	200	300	CR300	9W x 3D x 1.5H	3
P14494-31	35	300	GCE1	12W x 5D x 5H	7	P14494-CR-21	150	300	CR300	9W x 3D x 1.5H	3
P14494-32	35	820	GCE2	12W x 7D x 5H	10	P14494-CR-22	100	300	CR300	9W x 3D x 1.5H	3
P14494-CR-01	500	100	CR100	6W x 1.5D x 0.75H	1	P14494-CR-24	50	300	CR300	9W x 3D x 1.5H	3
P14494-CR-02	200	100	CR100	6W x 1.5D x 0.75H	1	P14494-CR-29	150	400	CR400	12W x 3D x 1.5H	4
P14494-CR-03	150	100	CR100	6W x 1.5D x 0.75H	1	P14494-CR-30	100	400	CR400	12W x 3D x 1.5H	4
P14494-CR-04	100	100	CR100	6W x 1.5D x 0.75H	1	P14494-CR-32	50	400	CR400	12W x 3D x 1.5H	4
P14494-CR-06	50	100	CR100	6W x 1.5D x 0.75H	1						

Braking Resistors

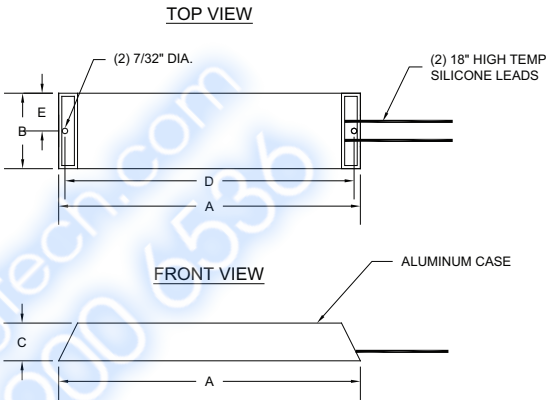
Information and Dimensions

CR Case Resistors Overview

Powerohm's Type CR resistors are manufactured with quality components for superior performance and increased life expectancy. Our case resistors feature a nickel-chromium wire helically wound, then placed inside a ceramic fixture and inserted into a corrosion-resistant aluminum case. Each coil end is terminated to high temperature wire leads and encapsulated with a ceramic potting material. The result is a resistor element electrically isolated, but thermally bound to the outer case to allow the element heat to transfer to the metallic case and efficiently cool. The units are supplied with 18" wire leads, and the case is machined to include two mounting holes for easy installation.

Electrical Ratings & Dimensions of Standard Size Case Resistors

Wattage	Dimensions (in)				
	A	B	C	D	E
100	6	1-1/2	3/4	5-1/2	3/4
150	9	1-1/2	3/4	8-1/2	3/4
200	6	3	1-1/2	5-1/2	1-1/2
300	9	3	1-1/2	8-1/2	1-1/2
400	12	3	1-1/2	11-1/2	1-1/2



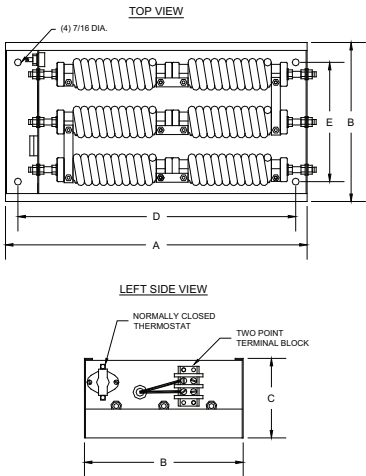
GCE Resistors Overview

The type GCE enclosures are heavy gage screened enclosures featuring a solid bottom and a built-in wiring compartment separated from the resistor assembly. The resistors are factory wired to a terminal block mounted in this compartment using high temperature Teflon or silicone wire. The terminal compartment also houses a normally closed thermal switch used for detecting resistor temperature overloads. During installation, standard 90 °C rated wire is routed into the compartment through the removable 1/2 inch conduit knockouts and connected to the factory wired terminal block.

Our standard unit includes a screened cover which is CNC punched to obtain maximum cooling and professional aesthetics. Mounting holes are located inside the enclosure and can be easily accessed by removing the cover. Resistor coils are interconnected using stainless steel bus bars, producing a corrosion resistant current path to withstand nearly any harsh industrial environment. The standard finish is galvanized, but an optional powder coated, aluminum or stainless steel finish is available upon request. As shown in the table below, the size of the enclosure will vary depending on the number of resistor coils required for your application. Units are available with louvered covers; add "-W" to the part number and note that the 'A' and 'B' dimensions will increase by an inch. Please do not hesitate to call the factory if you need assistance.

GCE Enclosure Dimensions and Coil Options

Part No.	Max. No. WR Code	Max. No. SXR, VR or ER	Dimensions (in)				
			A	B	C	D	E
GCE1	1	(1) Size 2	12	5	5	10-1/2	---
GCE2	2	(2) Size 2	12	7	5	10-1/2	4-1/2
GCE3	3	(3) Size 2	12	10	5	10-1/2	7-1/2



Input Reactors

Applications

Line side power conditioning for AC motor controls to prevent unwanted harmonics and nuisance drive trips as well as to prevent excess current during line disturbances that can damage power semi-conductors. There should be a minimum impedance associated with the drive using either AC or DC magnetics. In many applications, this impedance can come from a supply transformer, or if long enough, the supply cable themselves. In most cases, however, the use of an additional input reactor is recommended.

If any of the following conditions exist use of at least a 3% line reactor is recommended:

- Installation has voltage spikes in excess of 6000 V peak or lightning strikes.
- Installation has switched power factor correction capacitors.
- Installation has power interruptions or voltage sags in excess of 200 V AC.
- When the distribution system kVA is more than 10 times larger than the drive kVA.

Features

Open, UL Type 1 and UL Type 3R construction with connection terminals. 3% or 5% impedance rating at rated current.

Drive input current with and without input reactor

Type ACS150	Frame size	HP ND	Input without Reactor [A]	Input with 5% Reactor [A]
Single Phase Drive - 200-240 V Applications				
01U-02A4-2	R0	0.5	6.1	4.5
01U-04A7-2	R1	1	11	8.1
01U-06A7-2	R1	1.5	16	11
01U-07A5-2	R2	2	17	12
01U-09A8-2	R2	3	21	15
Three Phase Drive - 200-240 V Applications				
03U-02A4-2	R0	0.5	4.3	2.2
03U-03A5-2	R0	0.75	6.1	3.5
03U-04A7-2	R1	1	7.6	4.2
03U-06A7-2	R1	1.5	12	6.1
03U-07A5-2	R1	2	12	6.9
03U-09A8-2	R2	3	14	9.2
Three Phase Drive - 380-480 V Applications				
03U-01A2-4	R0	0.5	1.8	0.9
03U-01A9-4	R0	0.75	3.0	1.5
03U-02A4-4	R1	1	3.4	1.9
03U-03A3-4	R1	1.5	5.0	2.6
03U-04A1-4	R1	2	5.8	2.9
03U-05A6-4	R1	3	8.0	4.0
03U-08A8-4	R1	5	11	6.4

Input Reactors, High Impedance

Single Phase Drive - 200-240 V Applications

Drive Part # ACS150-01U	HP ND	Input/Output Current [A]	KDR UR 5%, Open, Not UL Part Number	KDR UR 5%, NEMA 1, Not UL Part Number	KDR 5%, UL Listed, Open			
					Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
02A4-2	0.5	2.4	KDRA25H	KDRA25HC1	KDRULA25H	14.0	4.00x4.18x3.75	4
04A7-2	1	4.7	KDRA27H	KDRA27HC1	KDRULA27H	23.6	4.00x4.18x3.75	4
06A7-2	1.5	6.7	KDRA28H	KDRA28HC1	KDRULA28H	30.6	4.00x4.18x3.75	4
07A5-2	2	7.5	KDRD22H	KDRD22HC2	KDRULD22H	30.5	4.00x4.18x3.75	4
09A8-2	3	9.8	KDRD22H	KDRD22HC2	KDRULD22H	43.1	4.00x4.18x3.75	4

Drive Part # ACS150-01U	HP ND	Input/Output Current [A]	KDR 5%, UL Type 1 Enclosure				KDR 5%, UL Type 3R Enclosure			
			Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
02A4-2	0.5	2.4	KDRULA25HE01	14.0	4.00x4.18x3.75	4	KDRULA25HE3R	14.0	4.00x4.18x3.75	4
04A7-2	1	4.7	KDRULA27HE01	23.6	4.00x4.18x3.75	4	KDRULA27HE3R	23.6	4.00x4.18x3.75	4
06A7-2	1.5	6.7	KDRULA28HE01	30.6	4.00x4.18x3.75	4	KDRULA28HE3R	30.6	4.00x4.18x3.75	4
07A5-2	2	7.5	KDRULD22HE01	30.5	4.00x4.18x3.75	4	KDRULD22HE3R	30.5	4.00x4.18x3.75	4
09A8-2	3	9.8	KDRULD22HE01	43.1	4.00x4.18x3.75	4	KDRULD22HE3R	43.1	4.00x4.18x3.75	4

Three Phase Drive - 200-240 V Applications

Drive Part # ACS150-03U	HP ND	Input/Output Current [A]	KDR UR 5%, Open, Not UL Part Number	KDR UR 5%, NEMA 1, Not UL Part Number	KDR 5%, UL Listed, Open			
					Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
02A4-2	0.5	2.4	KDRA25H	KDRA25HC1	KDRULA25H	23.6	4x4.18x3.75	4
03A5-2	0.75	3.5	KDRA27H	KDRA27HC1	KDRULA27H	30.6	4x4.18x3.75	4
04A7-2	1	4.7	KDRA26H	KDRA26HC1	KDRULA26H	30.5	4x4.18x3.75	4
06A7-2	1.5	6.7	KDRB25H	KDRB25HC1	KDRULB25H	53.1	5x6x4	8
07A5-2	2	7.5	KDRB25H	KDRB25HC1	KDRULB25H	53.1	5x6x4	8
09A8-2	3	9.8	KDRB26H	KDRB26HC1	KDRULB26H	66.5	5x6x4	8

Drive Part # ACS150-03U	HP ND	Input/Output Current [A]	KDR 5%, UL Type 1 Enclosure				KDR 5%, UL Type 3R Enclosure			
			Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
02A4-2	0.5	2.4	KDRULA25HE01	23.6	12.25x12.5x6.75	14.5	KDRULA25HE3R	23.6	11.5x10x12	19
03A5-2	0.75	3.5	KDRULA27HE01	30.6	12.25x12.5x6.75	14.5	KDRULA27HE3R	30.6	11.5x10x12	19
04A7-2	1	4.7	KDRULA26HE01	30.5	12.25x12.5x6.75	14.5	KDRULA26HE3R	30.5	11.5x10x12	19
06A7-2	1.5	6.7	KDRULB25HE01	53.1	12.25x12.5x6.75	18.5	KDRULB25HE3R	53.1	11.5x10x12	23
07A5-2	2	7.5	KDRULB25HE01	53.1	12.25x12.5x6.75	18.5	KDRULB25HE3R	53.1	11.5x10x12	23
09A8-2	3	9.8	KDRULB26HE01	66.5	12.25x12.5x6.75	18.5	KDRULB26HE3R	66.5	11.5x10x12	23

Input Reactors, High Impedance

Three Phase Drive - 380-480 V Applications

Drive Part # ACS150-03U	HP ND	Input/Output Current [A]	KDR UR 5%, Open, Not UL Part Number	KDR UR 5%, NEMA 1, Not UL Part Number	KDR 5%, UL Listed, Open			
					Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
01A2-4	0.5	1.2	KDRA8H	KDRA8HC1	KDRULA8H	12.0	4x4.18x3.75	4
01A9-4	0.75	1.9	KDRA9H	KDRA9HC1	KDRULA9H	23.0	4x4.18x3.75	4
02A4-4	1	2.4	KDRA1H	KDRA1HC1	KDRULA1H	33.0	4x4.18x3.75	4
03A3-4	1.5	3.3	KDRA2H	KDRA2HC1	KDRULA2H	38.0	4x4.18x3.75	4
04A1-4	2	4.1	KDRA2H	KDRA2HC1	KDRULA2H	38.0	4x4.18x3.75	4
05A6-4	3	5.6	KDRA4H	KDRA4HC1	KDRULA4H	77.0	4x4.18x3.75	5
08A8-4	5	8.8	KDRA5H	KDRA5HC1	KDRULA5H	111.0	4x4.18x3.75	5

Drive Part # ACS150-03U	HP ND	Input/Output Current [A]	KDR 5%, UL Type 1 Enclosure				KDR 5%, UL Type 3R Enclosure			
			Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
01A2-4	0.5	1.2	KDRULA8HE01	12	12.25x12.5x6.75	14.5	KDRULA8HE3R	12.0	11.5x10x12	19
01A9-4	0.75	1.9	KDRULA9HE01	23	12.25x12.5x6.75	14.5	KDRULA9HE3R	23.0	11.5x10x12	19
02A4-4	1	2.4	KDRULA1HE01	33	12.25x12.5x6.75	14.5	KDRULA1HE3R	33.0	11.5x10x12	19
03A3-4	1.5	3.3	KDRULA2HE01	38	12.25x12.5x6.75	14.5	KDRULA2HE3R	38.0	11.5x10x12	19
04A1-4	2	4.1	KDRULA2HE01	38	12.25x12.5x6.75	14.5	KDRULA2HE3R	38.0	11.5x10x12	19
05A6-4	3	5.6	KDRULA4HE01	77	12.25x12.5x6.75	15.5	KDRULA4HE3R	77.0	11.5x10x12	20
08A8-4	5	8.8	KDRULA5HE01	111	12.25x12.5x6.75	15.5	KDRULA5HE3R	111.0	11.5x10x12	20

Input Reactors, Low Impedance

Single Phase Drive - 200-240 V Applications

Drive Part # ACS150-01U	HP ND	Input/Output Current [A]	KDR UR 3%, Open, Not UL Part Number	KDR UR 3%, NEMA 1, Not UL Part Number	KDR 3%, UL Listed, Open			
					Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
02A4-2	0.5	2.4	KDRA25L	KDRA25LC1	KDRULA25L	7.0	4.00x4.18x3.75	4
04A7-2	1	4.7	KDRA27L	KDRA27LC1	KDRULA27L	11.0	4.00x4.18x3.75	4
06A7-2	1.5	6.7	KDRA28L	KDRA28LC1	KDRULA28L	18.0	4.00x4.18x3.75	4
07A5-2	2	7.5	KDRB22L	KDRB22LC1	KDRULB22L	21.0	4.00x4.18x3.75	4
09A8-2	3	9.8	KDRB22L	KDRB22LC1	KDRULB22L	29.0	4.00x4.18x3.75	4

Drive Part # ACS150-01U	HP ND	Input/Output Current [A]	KDR 3%, UL Type 1 Enclosure				KDR 3%, UL Type 3R Enclosure			
			Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
02A4-2	0.5	2.4	KDRULA25LE01	7	12.25x12.5x6.75	14.5	KDRULA25LE3R	7.0	4.00x4.18x3.75	4
04A7-2	1	4.7	KDRULA27LE01	11.0	12.25x12.5x6.75	14.5	KDRULA27LE3R	11.0	4.00x4.18x3.75	4
06A7-2	1.5	6.7	KDRULA28LE01	18.0	12.25x12.5x6.75	14.5	KDRULA28LE3R	18.0	4.00x4.18x3.75	4
07A5-2	2	7.5	KDRULB22LE01	21.0	12.25x12.5x6.75	18.5	KDRULB22LE3R	21.0	4.00x4.18x3.75	4
09A8-2	3	9.8	KDRULB22LE01	29.0	12.25x12.5x6.75	18.5	KDRULB22LE3R	29.0	4.00x4.18x3.75	4

Three Phase Drive - 200-240 V Applications

Drive Part # ACS150-03U	HP ND	Input/Output Current [A]	KDR UR 3%, Open, Not UL Part Number	KDR UR 3%, NEMA 1, Not UL Part Number	KDR 3%, UL Listed, Open			
					Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
02A4-2	0.5	2.4	KDRA25L	KDRA25LC1	KDRULA25L	11.0	4x4.18x3.75	4
03A5-2	0.75	3.5	KDRA26L	KDRA26LC1	KDRULA26L	18.0	4x4.18x3.75	4
04A7-2	1	4.7	KDRA27L	KDRA27LC1	KDRULA27L	21.0	4x4.18x3.75	4
06A7-2	1.5	6.7	KDRA28L	KDRA28LC1	KDRULA28L	29.0	4x4.18x3.75	4
07A5-2	2	7.5	KDRB22L	KDRB22LC1	KDRULB22L	38.0	5x6x4	8
09A8-2	3	9.8	KDRB22L	KDRB22LC1	KDRULB22L	38.0	5x6x4	8

Drive Part # ACS150-03U	HP ND	Input/Output Current [A]	KDR 3%, UL Type 1 Enclosure				KDR 3%, UL Type 3R Enclosure			
			Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
02A4-2	0.5	2.4	KDRULA25LE01	11.0	12.25x12.5x6.75	14.5	KDRULA25LE3R	11.0	11.5x10x12	19
03A5-2	0.75	3.5	KDRULA26LE01	18.0	12.25x12.5x6.75	14.5	KDRULA26LE3R	18.0	11.5x10x12	19
04A7-2	1	4.7	KDRULA27LE01	21.0	12.25x12.5x6.75	14.5	KDRULA27LE3R	21.0	11.5x10x12	19
06A7-2	1.5	6.7	KDRULA28LE01	29.0	12.25x12.5x6.75	18.5	KDRULA28LE3R	29.0	11.5x10x12	19
07A5-2	2	7.5	KDRULB22LE01	38.0	12.25x12.5x6.75	18.5	KDRULB22LE3R	38.0	11.5x10x12	23
09A8-2	3	9.8	KDRULB22LE01	38.0	12.25x12.5x6.75	18.5	KDRULB22LE3R	38.0	11.5x10x12	23

Input Reactors, Low Impedance

Three Phase Drive - 380-480 V Applications

Drive Part # ACS150-03U	HP ND	Input/Output Current [A]	KDR UR 3%, Open, Not UL Part Number	KDR UR 3%, NEMA 1, Not UL Part Number	KDR 3%, UL Listed, Open			
					Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
01A2-4	0.5	1.2	KDRA8L	KDRA8LC1	KDRULA8L	10.4	4x4.18x3.75	4
01A9-4	0.75	1.9	KDRA9L	KDRA9LC1	KDRULA9L	17.0	4x4.18x3.75	4
02A4-4	1	2.4	KDRA1L	KDRA1LC1	KDRULA1L	19.0	4x4.18x3.75	4
03A3-4	1.5	3.3	KDRA1L	KDRA1LC1	KDRULA1L	19.0	4x4.18x3.75	4
04A1-4	2	4.1	KDRA1L	KDRA1LC1	KDRULA1L	19.0	4x4.18x3.75	4
05A6-4	3	5.6	KDRA3L	KDRA3LC1	KDRULA3L	49.0	4x4.18x3.75	4
08A8-4	5	8.8	KDRA4L	KDRA4LC1	KDRULA4L	40.0	4x4.18x3.75	4

Drive Part # ACS150-03U	HP ND	Input/Output Current [A]	KDR 3%, UL Type 1 Enclosure				KDR 3%, UL Type 3R Enclosure			
			Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
01A2-4	0.5	1.2	KDRULA8LE01	10.4	12.25x12.5x6.75	14.5	KDRULA8LE3R	10.4	11.5x10x12	19
01A9-4	0.75	1.9	KDRULA9LE01	17.0	12.25x12.5x6.75	14.5	KDRULA9LE3R	17.0	11.5x10x12	19
02A4-4	1	2.4	KDRULA1LE01	19.0	12.25x12.5x6.75	14.5	KDRULA1LE3R	19.0	11.5x10x12	19
03A3-4	1.5	3.3	KDRULA1LE01	19.0	12.25x12.5x6.75	14.5	KDRULA1LE3R	19.0	11.5x10x12	19
04A1-4	2	4.1	KDRULA1LE01	19.0	12.25x12.5x6.75	14.5	KDRULA1LE3R	19.0	11.5x10x12	19
05A6-4	3	5.6	KDRULA3LE01	49.0	12.25x12.5x6.75	14.5	KDRULA3LE3R	49.0	11.5x10x12	19
08A8-4	5	8.8	KDRULA4LE01	40.0	12.25x12.5x6.75	14.5	KDRULA4LE3R	40.0	11.5x10x12	19

dv/dt Output Filters

Applications

V1k Output Filters provide motor protection by limiting voltage spikes to 1,000 volts, or below, for long motor cable applications. Greatly extends the life of the motor and cable for all applications up to 1000 feet. For multi-motor applications note that motor lead length is cumulative and the 1000 foot limit still applies. 30% reduction in common mode current enough.

Features

UL Open, UL Type 1 and UL Type 3R construction with connection terminals.

Note: The drives internal EMC filter must remain disconnected when using these filters. When applying these output filters the drive output frequency is limited to 60 Hz.

Three Phase Drive - 380-480 V Applications

Drive Part # ACS150-03U	HP ND	Input/ Output Current [A]	V1K UL Open				V1K UL Type 1 Enclosure				V1K UL Type 3R Enclosure			
			Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
02A4-2	0.5	2.4	V1K3A00	75	9.00x5.50x7.25	8	V1K3A01	75	9.00x5.50x10.00	11	V1K3A03	75	11.45x10.00x12.00	25
04A7-2	1	4.7	V1K6A00	80	9.00x5.50x7.25	8	V1K6A01	80	9.00x5.50x10.00	11	V1K6A03	80	11.45x10.00x12.00	25
06A7-2	1.5	6.7	V1K6A00	80	9.00x5.50x7.25	8	V1K6A01	80	9.00x5.50x10.00	11	V1K6A03	80	11.45x10.00x12.00	25
07A5-2	2	7.5	V1K8A00	90	9.00x5.50x7.25	8	V1K8A01	90	9.00x5.50x10.00	11	V1K8A03	90	11.45x10.00x12.00	25
09A8-2	3	9.8	V1K12A00	95	9.00x5.50x7.25	8	V1K12A01	95	9.00x5.50x10.00	11	V1K12A03	95	11.45x10.00x12.00	25

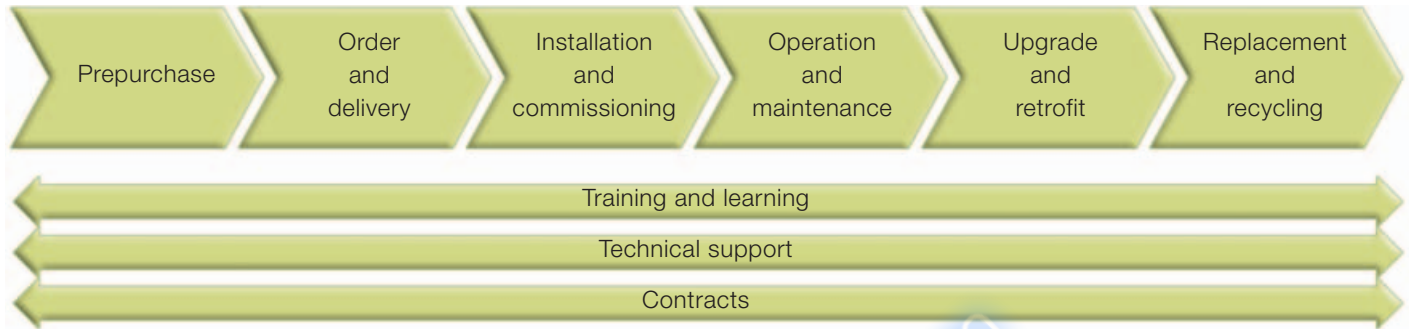
Three Phase Drive - 200-240 V Applications

Drive Part # ACS150-03U	HP ND	Input/ Output Current [A]	V1K UL Open				V1K UL Type 1 Enclosure				V1K UL Type 3R Enclosure			
			Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
02A4-2	0.5	2.4	V1K3A00	75	9.00x5.50x7.25	8	V1K3A01	75	9.00x5.50x10.00	11	V1K3A03	75	11.45x10.00x12.00	25
03A5-2	0.75	3.5	V1K4A00	75	9.00x5.50x7.25	8	V1K4A01	75	9.00x5.50x10.00	11	V1K4A03	75	11.45x10.00x12.00	25
04A7-2	1	4.7	V1K6A00	80	9.00x5.50x7.25	8	V1K6A01	80	9.00x5.50x10.00	11	V1K6A03	80	11.45x10.00x12.00	25
06A7-2	1.5	6.7	V1K6A00	80	9.00x5.50x7.25	8	V1K6A01	80	9.00x5.50x10.00	11	V1K6A03	80	11.45x10.00x12.00	25
07A5-2	2	7.5	V1K8A00	90	9.00x5.50x7.25	8	V1K8A01	90	9.00x5.50x10.00	11	V1K8A03	90	11.45x10.00x12.00	25
09A8-2	3	9.8	V1K12A00	95	9.00x5.50x7.25	8	V1K12A01	95	9.00x5.50x10.00	11	V1K12A03	95	11.45x10.00x12.00	25

Three Phase Drive - 380-480 V Applications

Drive Part # ACS150-03U	HP ND	Input/ Output Current [A]	V1K UL Open				V1K UL Type 1 Enclosure				V1K UL Type 3R Enclosure			
			Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)	Part Number	Watts	Dimensions (HxWxD) (in)	Weight (lbs)
01A2-4	0.5	1.2												
01A9-4	0.75	1.9	V1K2A00	75	9.00x5.50x7.25	8	V1K2A01	75	9.00x5.50x10.00	11	V1K2A03	11	11.45x10.00x12.00	25
02A4-4	1	2.4	V1K3A00	75	9.00x5.50x7.25	8	V1K3A01	75	9.00x5.50x10.00	11	V1K3A03	11	11.45x10.00x12.00	25
03A3-4	1.5	3.3	V1K3A00	75	9.00x5.50x7.25	8	V1K3A01	75	9.00x5.50x10.00	11	V1K3A03	11	11.45x10.00x12.00	25
04A1-4	2	4.1	V1K4A00	75	9.00x5.50x7.25	8	V1K4A01	75	9.00x5.50x10.00	11	V1K4A03	11	11.45x10.00x12.00	25
05A6-4	3	5.6	V1K6A00	80	9.00x5.50x7.25	8	V1K6A01	80	9.00x5.50x10.00	11	V1K6A03	11	11.45x10.00x12.00	25
08A8-4	5	8.8	V1K8A00	90	9.00x5.50x7.25	8	V1K8A01	90	9.00x5.50x10.00	11	V1K8A03	11	11.45x10.00x12.00	25

Expertise at every stage of the value chain



Whether you operate in industry, commerce or a utility your aims remain the same: to keep your motor-driven applications running consistently and efficiently. The life cycle services for ABB drives can help you achieve these aims by maximizing the uptime of your process while ensuring the optimum lifetime of ABB drives in a predictable, safe and low-cost manner.

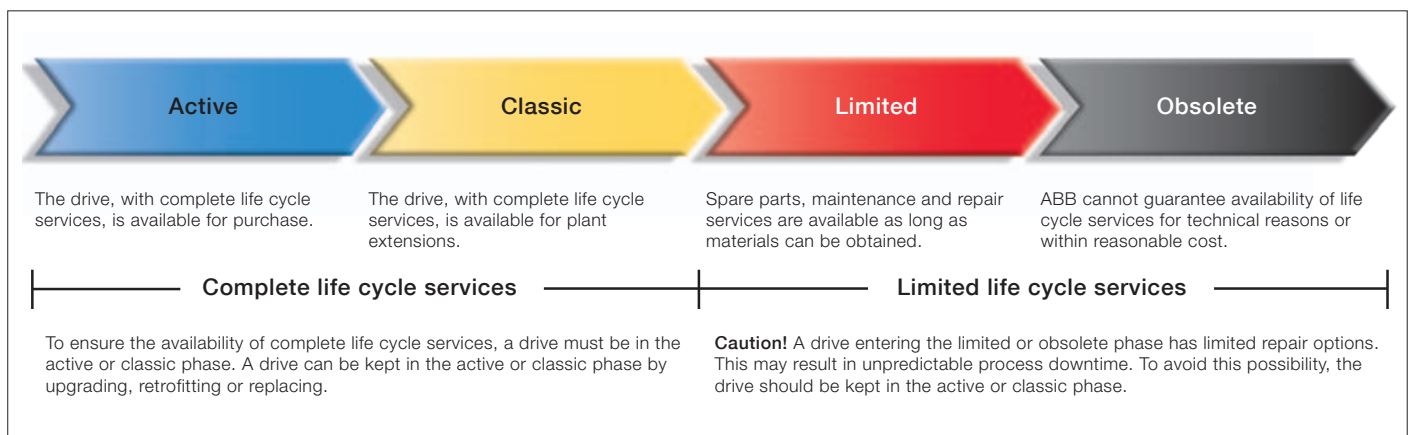
The life cycle services for ABB drives span the entire value chain, from the moment you make the first enquiry about a drive through to its disposal and recycling. Throughout the value chain, ABB provides training and learning, technical support and contracts. All of this is supported by one of the most extensive global drive sales and service networks.

Secure uptime throughout the drive life cycle

ABB follows a four-phase model for the life cycle management of its drives. The life cycle phases are active, classic, limited and obsolete. Within each phase, every drive series has a defined set of services.

The four-phase drive life cycle management model provides you with a transparent method for managing your investment in drives. In each phase, you clearly see what life cycle services are available, and more importantly, what services are not available. Decisions on upgrading, retrofitting or replacing drives can be made with confidence.

ABB drive life cycle management model



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