

CATALOG

### **ABB micro drives**

ACS150, 0.37 to 4 kW



## Get the best out of your basic applications. ACS150 drives.

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### **ABB micro drives, ACS150** Get the best out of your basic applications

Even your smallest motors can enjoy the daily dependability, reliability and performance of our drive technology. The ABB micro drives can be conveniently tuned to your business needs with precise speed control and simple integration. Add compact efficiency, convenient global service and expertise, and you have everything you need to add big benefits to your small motors.

Take smooth performance to the next level with the wide power range and functionality of ACS150. Available in both single and three phase supplies. The drives are easy to select and provide a range of built-in features as standard including PID control, brake chopper, fixed keypad and speed control potentiometer. An optional FlashDrop drive configuration tool makes configuring unpowered drives quick and easy.

The ABB micro drives meet the requirements of OEMs, machinery builders and panel builders. These drives are widely available through the ABB distribution network.

#### Highlights

- Power range 0.37 to 4 kW/0.5 to 5 Hp
- IP20 enclosure
- Scalar control
- Integrated user interface and potentiometer
- Built-in brake chopper
- Built-in EMC filter for 2<sup>nd</sup> environment

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 contaminates, 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.

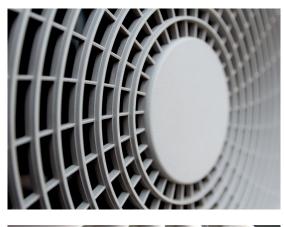
In conveyors the belt speed can be controlled using a drive and a motor. Production lines often have multiple stages, including conveyors, which need to be efficiently linked with each other to provide high production output. A drive provides smooth start and stop of the conveyor, thereby reducing mechanical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





### Ratings, types and dimensions

#### Type designation

In column 4 on the right is the unique reference number that clearly indentifies 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 page 7.

#### Construction

"01X" and "03X" within the type designation varies depending on the drive phase and EMC filtering. Choose below the one you need.

- 01 = 1-phase
- 03 = 3-phase
- E = EMC filter connected, 50 Hz frequency

H1 H2 нз

U = EMC filter disconnected, 60 Hz frequency (In case the filter is required it can easily be connected.)

			IP20 UL d	open		
Frame size	H1 mm	H2 mm	H3 mm	W mm	D mm	Weight kg
R0	169	202	239	70	142	1.1
R1	169	202	239	70	142	1.3
R2	169	202	239	105	142	1.5

H1 = Height without fastenings and clamping plate.

H2 = Height with fastenings but without clamping plate. H3 = Height with fastenings and clamping plate.

W = Width

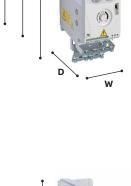
D = Depth

Wall-mounted drives (NEMA 1)						
		1	NEMA 1			
Frame	H4	H5	W	D	Weight	
size	mm	mm	mm	mm	kg	
RO	257	280	70	142	1.5	
R1	257	280	70	142	1.7	
R2	257	282	105	142	1.9	

H4 = Height with fastenings and NEMA 1 connection box.

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

D = Depth







Ratings				
P <sub>N</sub> kW	P <sub>N</sub> hp	I <sub>2N</sub> А	Type designation	Frame size
1-phase AC s	upply, 200 to 2	40 V		
0.37	0.5	2.4	ACS150-01X-02A4-2	RO
0.75	1	4.7	ACS150-01X-04A7-2	R1
1.1	1.5	6.7	ACS150-01X-06A7-2	R1
1.5	2	7.5	ACS150-01X-07A5-2	R2
2.2	3	9.8	ACS150-01X-09A8-2	R2
3-phase AC s	upply, 200 to 2	40 V		
0.37	0.5	2.4	ACS150-03X-02A4-2	RO
0.55	0.75	3.5	ACS150-03X-03A5-2	RO
0.75	1	4.7	ACS150-03X-04A7-2	R1
1.1	1.5	6.7	ACS150-03X-06A7-2	R1
1.5	2	7.5	ACS150-03X-07A5-2	R1
2.2	3	9.8	ACS150-03X-09A8-2	R2
3-phase AC s	upply, 380 to 4	80 V		
0.37	0.5	1.2	ACS150-03X-01A2-4	RO
0.55	0.75	1.9	ACS150-03X-01A9-4	RO
0.75	1	2.4	ACS150-03X-02A4-4	R1
1.1	1.5	3.3	ACS150-03X-03A3-4	R1
1.5	2	4.1	ACS150-03X-04A1-4	R1
2.2	3	5.6	ACS150-03X-05A6-4	R1
4	5	8.8	ACS150-03U-08A8-4	R1

X within the type code stands for  ${\sf E}$  or  ${\sf U}.$ 

### **Technical data**

Mains connection           Voltage and power range         1-phase, 200 to 240 V ± 10 0.37 to 2.2 kW (0.5 to 3) 3-phase, 200 to 240 V ± 10 0.37 to 2.2 kW (0.5 to 3) 3-phase, 380 to 480 V ± 10 0.37 to 4 kW (0.5 to 5)           Frequency         48 to 63           Motor connection         Voltage           Yoltage         3-phase, from 0 to U <sub>s</sub> Frequency         0 to 500	hp) 0% hp) 0% hp)
0.37 to 2.2 kW (0.5 to 3)           3-phase, 200 to 240 V ± 10           0.37 to 2.2 kW (0.5 to 3)           3-phase, 380 to 480 V ± 10           0.37 to 4 kW (0.5 to 5)           Frequency           48 to 63           Motor connection           Voltage         3-phase, from 0 to U <sub>st</sub>	hp) 0% hp) 0% hp)
3-phase, 200 to 240 V ± 10           0.37 to 2.2 kW (0.5 to 3)           3-phase, 380 to 480 V ± 10           0.37 to 4 kW (0.5 to 5)           Frequency           48 to 63           Motor connection           Voltage         3-phase, from 0 to U <sub>st</sub>	0% hp) 0% hp)
0.37 to 2.2 kW (0.5 to 3)           3-phase, 380 to 480 V ± 10           0.37 to 4 kW (0.5 to 5)           Frequency           48 to 63           Motor connection           Voltage           3-phase, from 0 to U <sub>st</sub>	hp) 0% hp)
3-phase, 380 to 480 V ± 10           0.37 to 4 kW (0.5 to 5           Frequency         48 to 63           Motor connection           Voltage         3-phase, from 0 to U <sub>st</sub>	0% hp)
Frequency     48 to 63       Motor connection     3-phase, from 0 to U_st	hp)
Frequency     48 to 63       Motor connection     Voltage	
Motor connection           Voltage         3-phase, from 0 to U <sub>st</sub>	Hz
Motor connection           Voltage         3-phase, from 0 to U <sub>st</sub>	Hz
Voltage         3-phase, from 0 to Using	
	upply
0.0000	
Continuous loading Rated output current	· 1
capability	. <b>1</b> 2N
(constant torque at	
a max. ambient	
temperature of 40 °C)	
<b>Overload capability</b> At heavy duty use $1.5 \times I_{2N}$	for
(at a max. ambient 1 minute every 10 minute	
temperature of 40 °C) At start $1.8 \times I_{2N}$ for	
Switching frequency	
	۲L
Selectable 4 to 16 kHz with 4 kHz ste	eps
Acceleration time 0.1 to 180	0 s
Deceleration time 0.1 to 180	0 s
Braking Built-in brake chopper	as
standa	
Motor control method Scalar	U/f
Environmental limits	
Ambient temperature -10 to 40 °C (14 to 104 °F),	no
frost allowed, 50	°C
(122 °F) with 10% derat	ing
Altitude	
Output current Rated current availa	ble
at 0 to 1000	) m
(0 to 3281 ft) reduced	by
1% per 100	) m
(328 ft) over 1000 to 2000	) m
(3281 to 6562	ft)
Relative humidity Lower than 95% (with	out
condensati	on)
Degree of protection IP20/Optional NEM	A 1
enclos	ure
Enclosure colour NCS 1502-Y, RAL 90	02.
PMS 42	
Contamination levels IEC 721-	3-3
No conductive dust allow	
Transportation Class 1C2 (chemical gas	
Class 1S2 (solid particl	
Storage Class 2C2 (chemical gas	
Class 2S2 (solid particl	
Operation Class 3C2 (chemical gas	es)

Chokes				
AC input chokes	External option			
	For reducing THD in partia			
	loads and to comply with EN			
	61000-3-2			
AC output chokes	External option			
	To achieve longe			
	motor cables			
Programmable control co	nnections			
One analog input				
Voltage signal	0 (2) to 10 V, R <sub>in</sub> > 312 kG			
Current signal	0 (4) to 20 mA, $R_{\rm in}$ = 100 G			
Potentiometer reference	10 V ± 1% max			
value	10 mA, R < 10 kG			
Resolution	0.1% ± 2%			
Accuracy				
Auxiliary voltage	24 V DC ± 10% max, 200 m			
Five digital inputs	12 to 24 V DC with internal o			
	external supply			
	PNP and NPN, pulse train			
	0 to 16 kHz			
Input impedance	2.4 kC			
One relay output				
Туре	NO + NO			
Maximum				
switching voltage Maximum	250 V AC/30 V DO			
switching current	0.5 A/30 V DC; 5 A/230 V AC			
Maximum	0.5 A/30 V DC; 5 A/230 V AC			
continuous current	Arm			
Product compliance				
	6/95/EC with supplements			
Machinery Directive 2006/				
EMC Directive 2004/108/EC with supplements				
Quality assurance system ISO 9001				

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 GOST R approvals RoHS compliant

### **Control connections and interfaces**

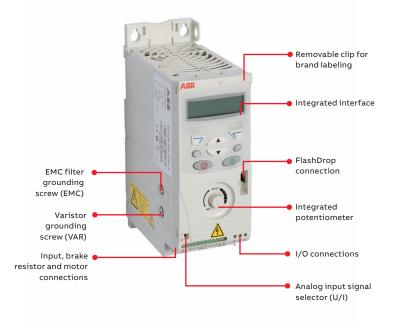
#### **Application macros**

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.

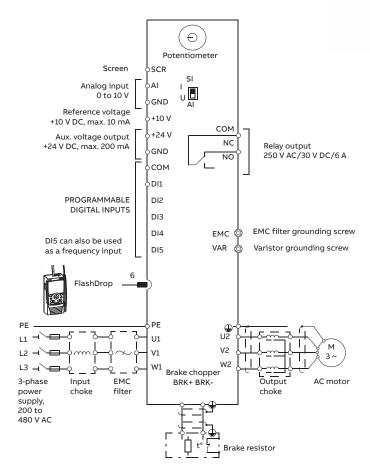
#### ABB micro drives have six standard macros:

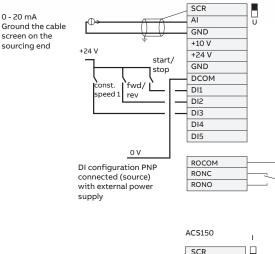
- ABB standard macro
- 3-wire macro
- Alternate macro
- Motor potentiometer macro
- Hand/auto macro
- PID control macro

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.

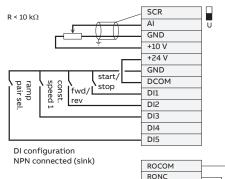


#### Typical I/O connections





ACS150



RONO

### **Cooling and fuses**

#### Cooling

ACS150 is fitted with cooling fans as standard. The cooling air must be free from corrosive substances and must not be above the maximum ambient temperature of 40 °C (50 °C with derating). For more specific limits see the Technical data - Environmental limits in this catalog.

#### Fuses

Standard fuses can be used with ABB micro drives. For input fuse connections see table below.

#### Cooling air flow

		Heat dis	sipation	Air f	low
Type designation	Frame size	[w]	BTU/hr	m³/h	ft³/min
1-phase, 200 to 240 V					
ACS150-01X-02A4-2	RO	25	85	-*)	-*)
ACS150-01X-04A7-2	R1	46	157	24	14
ACS150-01X-06A7-2	R1	71	242	24	14
ACS150-01X-07A5-2	R2	73	249	21	12
ACS150-01X-09A8-2	R2	96	328	21	12
3-phase, 200 to 240 V					
ACS150-03X-02A4-2	RO	19	65	-*)	-*)
ACS150-03X-03A5-2	RO	31	106	-*)	-*)
ACS150-03X-04A7-2	R1	38	130	24	14
ACS150-03X-06A7-2	R1	60	205	24	14
ACS150-03X-07A5-2	R1	62	212	21	12
ACS150-03X-09A8-2	R2	83	283	21	12
3-phase, 380 to 480 V					
ACS150-03X-01A2-4	RO	11	38	-*)	-*)
ACS150-03X-01A9-4	RO	16	55	-*)	-*)
ACS150-03X-02A4-4	R1	21	72	13	8
ACS150-03X-03A3-4	R1	31	106	13	8
ACS150-03X-04A1-4	R1	40	137	13	8
ACS150-03X-05A6-4	R1	61	208	19	11
ACS150-03X-07A3-4	R1	74	253	24	14
ACS150-03X-08A8-4	R1	94	321	24	14

X within the type code stands for E or U.

\*) Frame size R0 with free convection cooling.

### \_\_\_\_\_

Selection table

		IEC fuses		UL	fuses
Type designation	Frame size	[A]	Fuse type <sup>*)</sup>	[A]	Fuse type <sup>*)</sup>
1-phase, 200 to 240 V					
ACS150-01X-02A4-2	RO	10	gG	10	UL class T
ACS150-01X-04A7-2	R1	16	gG	20	UL class T
ACS150-01X-06A7-2	R1	20	gG	25	UL class T
ACS150-01X-07A5-2	R2	25	gG	30	UL class T
ACS150-01X-09A8-2	R2	35	gG	35	UL class T
3-phase, 200 to 240 V					
ACS150-03X-02A4-2	RO	10	gG	10	UL class T
ACS150-03X-03A5-2	RO	10	gG	10	UL class T
ACS150-03X-04A7-2	R1	10	gG	15	UL class T
ACS150-03X-06A7-2	R1	16	gG	15	UL class T
ACS150-03X-07A5-2	R1	16	gG	15	UL class T
ACS150-03X-09A8-2	R2	16	gG	20	UL class T
3-phase, 380 to 480 V					
ACS150-03X-01A2-4	RO	10	gG	10	UL class T
ACS150-03X-01A9-4	RO	10	gG	10	UL class T
ACS150-03X-02A4-4	R1	10	gG	10	UL class T
ACS150-03X-03A3-4	R1	10	gG	10	UL class T
ACS150-03X-04A1-4	R1	16	gG	15	UL class T
ACS150-03X-05A6-4	R1	16	gG	15	UL class T
ACS150-03X-07A3-4	R1	16	gG	20	UL class T
ACS150-03X-08A8-4	R1	20	gG	25	UL class T

X within the type code stands for E or U.

\*) According to IEC-60269 standard.

#### Free space requirements

Enclosure type	Space above	Space below	Space on left/right
	mm	mm	mm
All frame sizes	75	75	0

### 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. The brake resistor is selected using the table below. For more information about the selection of brake resistors, see the ACS150 user's manual.

#### Brake chopper limits and resistor selection table

Trune					electio	. to blo	h
Type designation	<b>R</b> <sub>min</sub>		<b>P</b> <sub>BRmax</sub>	5		or type	БУ
			DRIIIdx			R-V	
			-				Braking time 1)
ACS150-	[ohm]	[kW]	[hp]	160	210	460	[s]
1-phas, 200 t	o 240 V						
01X-02A4-2	70	0.37	0.5	•			90
01X-04A7-2	40	0.75	1	•			45
01X-06A7-2	40	1.1	1.5	•			28
01X-07A5-2	30	1.5	2	•			19
01X-09A8-2	30	2.2	3	•			14
3-phase, 200	to 240 V						
03X-02A4-2	70	0.37	0.5				90
03X-03A5-2	70	0.55	0.75				60
03X-04A7-2	40	0.75	1	•			42
03X-06A7-2	40	1.1	1.5	•			29
03X-07A5-2	30	1.5	2	٠			19
03X-09A8-2	30	2.2	3	•			14
3-phase, 380	to 480 V						
03X-01A2-4	200	0.37	0.5		٠		90
03X-01A9-4	175	0.55	0.75		۲		90
03X-02A4-4	165	0.75	1		۲		60
03X-03A3-4	150	1.1	1.5		٠		37
03X-04A1-4	130	1.5	2		۲		27
03X-05A6-4	100	2.2	3		۲		17
03X-07A3-4	70	3	4			•	29
03X-08A8-4	70	4	5			٠	20

X within the type code stands for  ${\sf E}$  or U.

<sup>1)</sup> Braking time = Maximum allowed braking time in seconds

at PBRmax every 120 seconds, at 40 °C ambient temperature

Ratings by resistor type	CBR-V 160	CBR-V 210	CBR-V 460
Nominal power [W]	280	360	790
Resistance [ohm]	70	200	80



A separate order line and type designation is required for any of these external options.

#### Input chokes

Input choke smooths the wave shape of the mains current and reduces total harmonic distortion (THD). Together with the input choke, the ACS150 is designed to fulfill the requirements of the harmonics standard EN/IEC 61000-3-12. In addition, the input choke provides improved protection against mains voltage transients.

#### **Output chokes**

Output choke decreases du/dt on the output and filters current spikes caused by voltage spikes. With an output choke it is possible to increase the motor cable length which could be otherwise limited due to a temperature increase resulting from current spikes and electromagnetic performance.

#### Input chokes

Type designation	Frame	Input	<i>I</i> <sub>1N</sub> without choke	<i>I</i> ₁ℕ with choke	<i>I</i> <sub>тн</sub>	L
ACS150-	size	choke	[A]	[A]	[A]	[mH]
1-phase, 200	to 240 V					
01X-02A4-2	RO	CHK-A1	6.1	4.5	5	8.0
01X-04A7-2	R1	CHK-B1	11.4	8.1	10	2.8
01X-06A7-2	R1	CHK-C1	16.1	11	16	1.2
01X-07A5-2	R2	CHK-C1	16.8	12	16	1.2
01X-09A8-2	R2	CHK-D1	21	15	25	1.0
3-phase, 200	3-phase, 200 to 240					
03X-02A4-2	RO	CHK-01	4.3	2.2	4.2	6.4
03X-03A5-2	RO	CHK-02	6.1	3.6	7.6	4.6
03X-04A7-2	R1	CHK-03	7.6	4.8	13	2.7
03X-06A7-2	R1	CHK-03	11.8	7.2	13	2.7
03X-07A5-2	R1	CHK-04	12	8.2	22	1.5
03X-09A8-2	R2	CHK-04	14.3	11	22	1.5
3-phase, 380 to 480 V						
03X-01A2-4	RO	CHK-01	2.2	1.1	4.2	6.4
03X-01A9-4	RO	CHK-01	3.6	1.8	4.2	6.4
03X-02A4-4	R1	CHK-01	4.1	2.3	4.2	6.4
03X-03A3-4	R1	CHK-01	6	3.1	4.2	6.4
03X-04A1-4	R1	CHK-02	6.9	3.5	7.6	4.6
03X-05A6-4	R1	CHK-02	9.6	4.8	7.6	4.6
03X-07A3-4	R1	CHK-02	11.6	6.1	7.6	4.6
03X-08A8-4	R1	CHK-03	13.6	7.7	13	2.7

#### **Output chokes**

Type designation			Cable length
acsignation	Frame		
ACS150-	size	Output choke	[m]
1-phase, 200 to 240 V			
01X-02A4-2	RO	ACS-CHK-B3	60
01X-04A7-2	R1	ACS-CHK-B3	100
01X-06A7-2	R1	ACS-CHK-C3	100
01X-07A5-2	R2	ACS-CHK-C3	100
01X-09A8-2	R2	ACS-CHK-C3	100
3-phase, 200 to 240 V			
03X-02A4-2	RO	ACS-CHK-B3	60
03X-03A5-2	RO	ACS-CHK-B3	60
03X-04A7-2	R1	ACS-CHK-B3	100
03X-06A7-2	R1	ACS-CHK-C3	100
03X-07A5-2	R1	ACS-CHK-C3	100
03X-09A8-2	R2	ACS-CHK-C3	100
3-phase, 380 to 480 V			
03X-01A2-4	RO	ACS-CHK-B3	60
03X-01A9-4	RO	ACS-CHK-B3	60
03X-02A4-4	R1	ACS-CHK-B3	100
03X-03A3-4	R1	ACS-CHK-B3	100
03X-04A1-4	R1	ACS-CHK-C3	100
03X-05A6-4	R1	ACS-CHK-C3	100
03X-07A3-4	R1	NOCH-0016-6x	100
03X-08A8-4	R1	NOCH-0016-6x	100

IIN = Nominal input current

 $\frac{1}{M_{TH}}$  = Nominal choke thermal current

L = Choke inductance



A separate order line and type designation is required for any of these external options.

#### **EMC filters**

The ACS150's internal EMC filter is designed to meet category C3 requirements of EN/IEC 61800-3 standard. External EMC filters are used to enhance the drives electromagnetic performance in conjunction with its internal filtering. Maximum motor cable length depends on required electromagnetic performance, according to the table below.

#### —

#### EMC filters

Type designation			Cable length <sup>1)</sup> with external EMC filter		Cable length <sup>1)</sup> without external EMC filter		
ACS150-	Frame size	Filter type	C1 [m]	C2 [m]	C3 [m]	C3 [m]	C4 [m]
1-phase, 200	to 240 V						
01X-02A4-2	RO	RFI-11	10	30	-	30	30
01X-04A7-2	R1	RFI-12	10	30	50	30	50
01X-06A7-2	R1	RFI-12	10	30	50	30	50
01X-07A5-2	R2	RFI-13	10	30	50	30	50
01X-09A8-2	R2	RFI-13	10	30	50	30	50
3-phase, 200	to 240 V						
03X-02A4-2	RO	RFI-32	10	30	-	30	30
03X-03A5-2	RO	RFI-32	10	30	-	30	30
03X-04A7-2	R1	RFI-32	10	30	50	30	50
03X-06A7-2	R1	RFI-32	10	30	50	30	50
03X-07A5-2	R1	RFI-32	10	30	50	30	50
03X-09A8-2	R2	RFI-32	10	30	50	30	50
3-phase, 380 to 480 V							
03X-01A2-4	RO	RFI-32	30	30	-	30	30
03X-01A9-4	RO	RFI-32	30	30	-	30	30
03X-02A4-4	R1	RFI-32	50	50	50	30	50
03X-03A3-4	R1	RFI-32	50	50	50	30	50
03X-04A1-4	R1	RFI-32	50	50	50	30	50
03X-05A6-4	R1	RFI-32	50	50	50	30	50
03X-07A3-4	R1	RFI-32	50	50	50	30	50
03X-08A8-4	R1	RFI-32	50	50	50	30	50

<sup>1)</sup>Internal EMC filter must be connected with the EMC screw in the drive. When the filter is not connected the C4 maximum cable lengths are allowed to be used.

#### Low leakage current filters

Low leakage current filters are ideal for installations where residual current devices (RCD) are required and leakage current needs to be below 30 mA.

#### Low leakage current filters

Type designation			Cable length <sup>1)</sup> with LRFI filter		
	Frame		C2		
ACS150-	size	Filter type	[m]		
Low leakage current filters, 3-phase, 400 V					
03X-01A2-4	RO	LRFI-31	10		
03X-01A9-4	RO	LRFI-31	10		
03X-02A4-4	R1	LRFI-31	10		
03X-03A3-4	R1	LRFI-31	10		
03X-04A1-4	R1	LRFI-31	10		
03X-05A6-4	R1	LRFI-31	10		
03X-07A3-4	R1	LRFI-32	10		
03X-08A8-4	R1	LRFI-32	10		
1) Internal EMC fil	***	annected by remevit			

 $^{\rm 1)}$  Internal EMC filter must be disconnected by removing the EMC screw from the drive.

#### EMC standards in general

EN 61800-3 (2004), product standard	EN 55011, product family standard for industrial, scientific and medical (ISM) equipment	EN 61800-3/A11 (2000), product standard
	Group 1	1 <sup>st</sup> environment,
Category C1	Class B	unrestricted distribution
	Group 1	1 <sup>st</sup> environment,
Category C2	Class A	restricted distribution
	Group 2	2 <sup>nd</sup> environment,
Category C3	Class A	unrestricted distribution
		2 <sup>nd</sup> environment,
Category C4	Not applicable	restricted distribution

### A lifetime of peak performance

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#### Step 1

#### Life Cycle Status Announcement

Provides early information about the upcoming life cycle phase change and how it affects the availability of services.

#### Step 2

#### Life Cycle Status Statement

Provides information about the drive's current life cycle status, availability of product and services, life cycle plan and recommended actions.





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