



Catalog

# ABB component drives ACS150, 0.37 to 4 kW / 0.5 to 5 hp



## ABB component drives

ABB component drives are designed for machine building. These drives are components that are bought together with other components from a logistical distributor. The drives are stocked, and the number of options and variants is optimized for logistical distribution.

## Highlights

- User-friendly LCD control panel and integrated potentiometer
- Flexible mounting alternatives
- Integrated EMC filter
- Inbuilt brake chopper as standard
- FlashDrop tool

## Applications

- Fans
- Pumps
- Gate control
- Material handling
- Conveyors

Feature	Advantage	Benefit
User-friendly LCD control panel and integrated potentiometer	Clear alphanumeric display. Easy set-up and use.	Time savings
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
Inbuilt brake chopper as standard	No need for an external brake chopper	Space savings, reduced installation cost
FlashDrop tool	Faster and easier drive set up 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.

# Technical specification



## Mains connection

<b>Voltage and power range</b>	1-phase, 200 to 240 V $\pm$ 10% 0.37 to 2.2 kW (0.5 to 3 hp) 3-phase, 200 to 240 V $\pm$ 10% 0.37 to 2.2 kW (0.5 to 3 hp) 3-phase, 380 to 480 V $\pm$ 10% 0.37 to 4 kW (0.5 to 5 hp)
<b>Frequency</b>	48 to 63 Hz
<b>Power factor</b>	0.98

## Motor connection

<b>Voltage</b>	3-phase, from 0 to $U_{supply}$
<b>Frequency</b>	0 to 500 Hz
<b>Continuous loading capability</b> <small>(constant torque at a max. ambient temperature 40°C)</small>	Rated output current $I_{2N}$
<b>Overload capability</b> <small>(at a max. ambient temperature of 40°C)</small>	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
<b>Switching frequency</b>	
Default	4 kHz
Selectable	4 to 16 kHz with 4 kHz steps
<b>Acceleration time</b>	0.1 to 1800 s
<b>Deceleration time</b>	0.1 to 1800 s
<b>Braking</b>	Inbuilt brake chopper as standard

## Environmental limits

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

## Chokes

<b>AC input chokes</b>	External option. For reducing THD in partial loads and to comply with EN 61000-3-2.
<b>AC output chokes</b>	External option. To achieve longer motor cables.

## Programmable control connections

<b>One analog input</b>	
Voltage signal	0 (2) to 10 V, $R_{in} > 312 \text{ k}\Omega$
Current signal	0 (4) to 20 mA, $R_{in} = 100 \Omega$
Potentiometer reference value	10 V $\pm$ 1% max. 10 mA, $R < 10 \text{ k}\Omega$
Resolution	0.1 %
Accuracy	$\pm$ 2%
<b>Auxiliary voltage</b>	24 V DC $\pm$ 10%, max. 200 mA
<b>Five digital inputs</b>	12 to 24 V DC with internal or external supply, PNP and NPN, pulse train 0 to 10 kHz.
Input impedance	2.4 k $\Omega$
<b>One relay output</b>	
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 73/23/EEC with supplements  
Machinery Directive 98/37/EC  
EMC Directive 89/336/EEC with supplements  
Quality assurance system ISO 9001  
Environmental system ISO 14001  
UL, cUL, CE, C-Tick and GOST R approvals

## EMC according to EN61800-3

2<sup>nd</sup> environment filter, unrestricted distribution, C3 with 30 m (98 ft) cable, inbuilt as standard.

## EMC standards in general

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



# Ratings, types, voltages and construction

## Type code

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 code, 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 - 240 V

**4** = 380 - 480 V

Insert either "2" or "4", depending on your chosen voltage, into the type code shown on the right.

## Construction

"01X" and "03X" within the type code 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

**U** = EMC filter disconnected, 60 Hz frequency

(In case the filter is required it can easily be connected.)

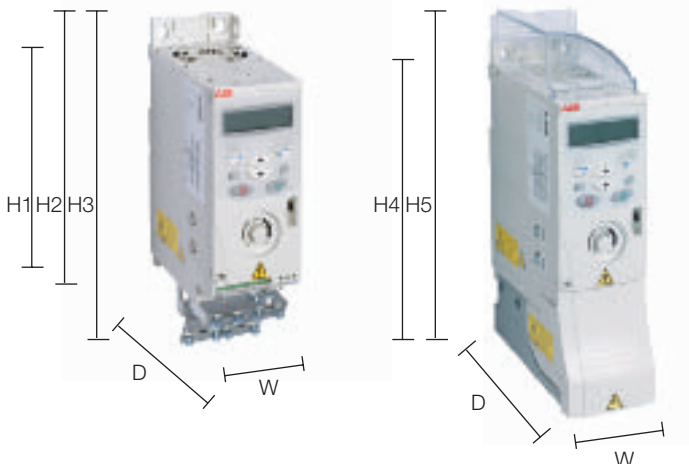
Ratings			Type code	Frame size
$P_N$ kW	$P_N$ hp	$I_{2N}$ A		
<b>1-phase supply voltage 200 - 240 V units</b>				
0.37	0.5	2.4	ACS150-01X-02A4-2	R0
0.75	1	4.7	ACS150-01X-04A7-2	R1
1.1	1.5	6.7	ACS150-01X-06A7-2	R1
1.5	2	7.5	ACS150-01X-07A5-2	R2
2.2	3	9.8	ACS150-01X-09A8-2	R2
<b>3-phase supply voltage 200 - 240 V units</b>				
0.37	0.5	2.4	ACS150-03X-02A4-2	R0
0.55	0.75	3.5	ACS150-03X-03A5-2	R0
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
<b>3-phase supply voltage 380 - 480 V units</b>				
0.37	0.5	1.2	ACS150-03X-01A2-4	R0
0.55	0.75	1.9	ACS150-03X-01A9-4	R0
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
3	4	7.3	ACS150-03X-07A3-4	R1
4	5	8.8	ACS150-03X-08A8-4	R1

X within the type code stands for E or U.

# Dimensions

## Cabinet-mounted drives (UL open)

## Wall-mounted drives (NEMA 1)



Frame size	IP20 UL open						NEMA 1				
	H1 mm	H2 mm	H3 mm	W mm	D mm	Weight kg	H4 mm	H5 mm	W mm	D mm	Weight kg
R0	169	202	239	70	142	1.1	257	280	70	142	1.5
R1	169	202	239	70	142	1.3	257	280	70	142	1.7
R2	169	202	239	105	142	1.5	257	282	105	142	1.9

H1 = Height without fastenings and clamping plate.  
H2 = Height with fastenings but without clamping plate.  
H3 = Height with fastenings and clamping plate.  
H4 = Height with fastenings and NEMA 1 connection box.  
H5 = Height with fastenings, NEMA 1 connection box and hood.  
W = Width  
D = Depth



## 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
- 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



## Brake resistors

The brake resistor is selected using the respective table. For more information about the selection of brake resistors, see the ACS150 User's Manual.

ACS150 is delivered with an integrated brake chopper as standard. No additional space or installation time is needed.

### Selection table

Type code	Frame size	$R_{min}$ ohm	$R_{max}$ ohm	$P_{BRmax}$ kW	hp
<b>1-phase supply voltage 200 - 240 V units</b>					
ACS150-01X-02A4-2	R0	70	390	0.37	0.5
ACS150-01X-04A7-2	R1	40	200	0.75	1
ACS150-01X-06A7-2	R1	40	130	1.1	1.5
ACS150-01X-07A5-2	R2	30	100	1.5	2
ACS150-01X-09A8-2	R2	30	70	2.2	3
<b>3-phase supply voltage 200 - 240 V units</b>					
ACS150-03X-02A4-2	R0	70	390	0.37	0.5
ACS150-03X-03A5-2	R0	70	260	0.55	0.75
ACS150-03X-04A7-2	R1	40	200	0.75	1
ACS150-03X-06A7-2	R1	40	130	1.1	1.5
ACS150-03X-07A5-2	R1	30	100	1.5	2
ACS150-03X-09A8-2	R2	30	70	2.2	3
<b>3-phase supply voltage 380 - 480 V units</b>					
ACS150-03X-01A2-4	R0	200	1180	0.37	0.5
ACS150-03X-01A9-4	R0	175	800	0.55	0.75
ACS150-03X-02A4-4	R1	165	590	0.75	1
ACS150-03X-03A3-4	R1	150	400	1.1	1.5
ACS150-03X-04A1-4	R1	130	300	1.5	2
ACS150-03X-05A6-4	R1	100	200	2.2	3
ACS150-03X-07A3-4	R1	70	150	3	4
ACS150-03X-08A8-4	R1	70	110	4	5

X within the type code stands for E or U.

## Input and output chokes

For input and output chokes, please contact your nearest ABB drives channel partner or local ABB office.

## 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.

# Technical data



## 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 specification - Environmental limits in this catalogue.

### Cooling air flow

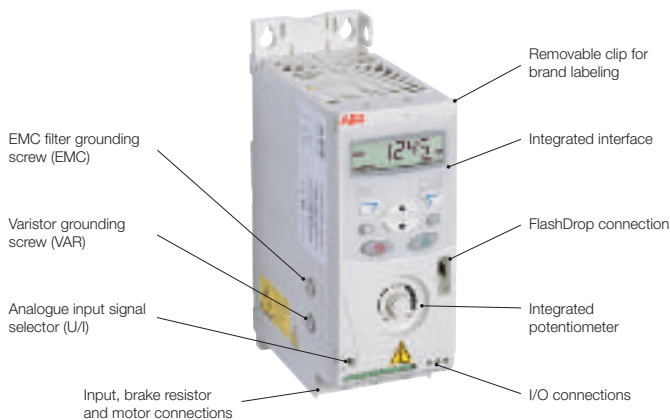
Type code	Frame size	Heat dissipation		Air flow	
		w	BTU/Hr	m <sup>3</sup> /h	ft <sup>3</sup> /min
<b>1-phase supply voltage 200 - 240 V units</b>					
ACS150-01X-02A4-2	R0	25	85	-*)	-*)
ACS150-01X-04A7-2	R1	46	157	24	14
ACS150-01X-06A7-2	R1	71	242	24	14
ACS150-01X-07A5-2	R2	73	249	21	12
ACS150-01X-09A8-2	R2	96	328	21	12
<b>3-phase supply voltage 200 - 240 V units</b>					
ACS150-03X-02A4-2	R0	19	65	-*)	-*)
ACS150-03X-03A5-2	R0	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
<b>3-phase supply voltage 380 - 480 V units</b>					
ACS150-03X-01A2-4	R0	11	38	-*)	-*)
ACS150-03X-01A9-4	R0	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.

### Free space requirements

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

## Interface and control connections



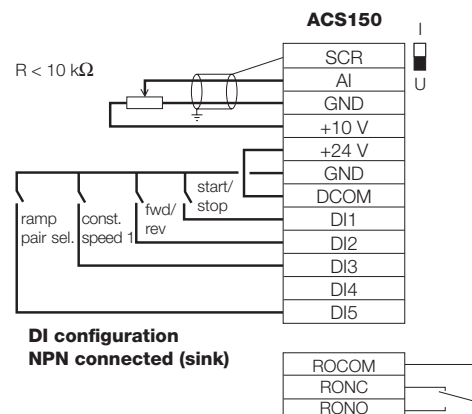
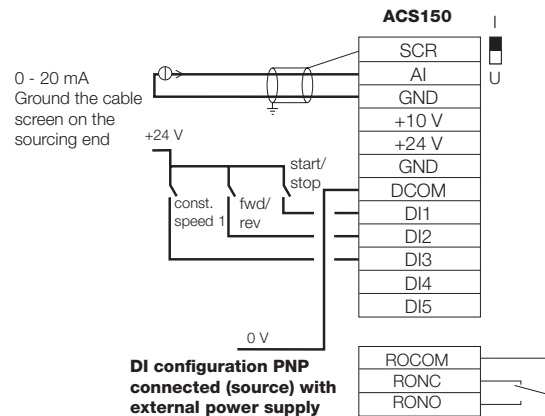
## Fuses

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

### Selection table

Type code	Frame size	IEC Fuses		UL Fuses	
		A	Fuse type*)	A	Fuse type*)
<b>1-phase supply voltage 200 - 240 V units</b>					
ACS150-01X-02A4-2	R0	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
<b>3-phase supply voltage 200 - 240 V units</b>					
ACS150-03X-02A4-2	R0	10	gG	10	UL class T
ACS150-03X-03A5-2	R0	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
<b>3-phase supply voltage 380 - 480 V units</b>					
ACS150-03X-01A2-4	R0	10	gG	10	UL class T
ACS150-03X-01A9-4	R0	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.



# Contact and web information

[www.abb.com/drives](http://www.abb.com/drives)



ABB's worldwide presence is built on strong local companies working together with the channel partner network. By combining the experience and know-how gained in local and global markets, we ensure that our customers in all industries can gain the full benefit from our products.

For further details about all our low voltage AC drives and services please contact your nearest ABB office or ABB drives channel partner or visit the websites [www.abb.com/drives](http://www.abb.com/drives) and [www.abb.com/drivespartners](http://www.abb.com/drivespartners).

## Albania (Tirana)

Tel: +355 42 241 492  
Fax: +355 42 234 368

## Algeria

Tel: +213 21 553 860  
Fax: +213 21 552 330

## Argentina (Valentin Alsina)

Tel: +54 11 4229 5500  
Fax: +54 11 4229 5784

## Australia (Victoria - Notting Hill)

Tel: +1800 222 435  
Tel: +61 3 8544 0000  
e-mail: [drives@au.abb.com](mailto:drives@au.abb.com)

## Austria (Vienna)

Tel: +43 1 60109 0  
Fax: +43 1 60109 8312

## Azerbaijan (Baku)

Tel: +994 12 404 5200  
Fax: +994 12 404 5202

## Bahrain (Manama)

Tel: +973 725 377  
Fax: +973 725 332

## Bangladesh (Dhaka)

Tel: +88 02 8856468  
Fax: +88 02 8850906

## Belarus (Minsk)

Tel: +375 228 12 40, 228 12 42  
Fax: +375 228 12 43

## Belgium (Zaventem)

Tel: +32 2 718 6320  
Fax: +32 2 718 6664

## Bolivia (La Paz)

Tel: +591 2 278 8181  
Fax: +591 2 278 8184

## Bosnia Herzegovina (Tuzla)

Tel: +387 35 246 020  
Fax: +387 35 255 098

## Brazil (Osasco)

Tel: 0800 014 9111  
Tel: +55 11 3688 9282  
Fax: +55 11 3688 9421

## Bulgaria (Sofia)

Tel: +359 2 807 5500  
Fax: +359 2 807 5599

## Canada (Montreal)

Tel: +1 514 420 3100  
Fax: +1 514 420 3138

## Chile (Santiago)

Tel: +56 2 471 4391  
Fax: +56 2 471 4399

## China (Beijing)

Tel: +86 10 5821 7788  
Fax: +86 10 5821 7618

## Colombia (Bogotá)

Tel: +57 1 417 8000  
Fax: +57 1 413 4086

## Costa Rica (San Jose)

Tel: +506 288 5484  
Fax: +506 288 5482

## Croatia (Zagreb)

Tel: +385 1 600 8550  
Fax: +385 1 619 5111

## Czech Republic (Prague)

Tel: +420 234 322 327  
e-mail: [motors&drives@cz.abb.com](mailto:motors&drives@cz.abb.com)

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Tel: +45 44 504 345  
Fax: +45 44 504 365

## Dominican Republic (Santo Domingo)

Tel: +809 562 9010  
Fax: +809 562 9011

## Ecuador (Quito)

Tel: +593 2 2500 645  
Fax: +593 2 2500 650

## Egypt (Cairo)

Tel: +202 2 6251630  
drives@eg.abb.com

## El Salvador (San Salvador)

Tel: +503 2264 5471  
Fax: +503 2264 2497

## Estonia (Tallinn)

Tel: +372 6801 800  
e-mail: [info@ee.abb.com](mailto:info@ee.abb.com)

## Ethiopia (Addis Abeba)

Tel: +251 1 669506, 669507  
Fax: +251 1 669511

## Finland (Helsinki)

Tel: +358 10 22 11  
Tel: +358 10 222 1999  
Fax: +358 10 222 2913

## France (Montluel)

Tel: +33 (0)4 37 40 40 00  
Fax: +33 (0)4 37 40 40 72

## Germany (Ladenburg)

Tel: +01805 222 580 (Service)  
Tel: +49 (0)6203 717 717  
Fax: +49 (0)6203 717 600

## Greece (Athens)

Tel: +30 210 289 1 651  
Fax: +30 210 289 1 792

## Guatemala (Guatemala City)

Tel: +502 2 363 3814  
Fax: +502 2 363 3624

## Hungary (Budapest)

Tel: +36 1 443 2224  
Fax: +36 1 443 2144

## India (Bangalore)

Tel: +91 80 2294 9585  
Fax: +91 80 2294 9389

## Indonesia (Jakarta)

Tel: +62 21 2551 5555  
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Tel: +98 21 2222 5120  
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## Ireland (Dublin)

Tel: +353 1 405 7300  
Fax: +353 1 405 7307

## Israel (Haifa)

Tel: +972 4 850 2111  
Fax: +972 4 850 2112

## Italy (Milan)

Tel: +39 02 2414 3085  
Fax: +39 02 2414 3979

## Ivory Coast (Abidjan)

Tel: +225 21 21 7575  
Fax: +225 21 35 0414

## Japan (Tokyo)

Tel: +81(0)3 5784 6010  
Fax: +81(0)3 5784 6275

## Jordan (Amman)

Tel: +962 6 562 0181  
Fax: +962 6 562 1369

## Kazakhstan (Almaty)

Tel: +7 727 2583838  
Fax: +7 727 2583839

## Kenya (Nairobi)

Tel: +254 20 828811/13 to 20  
Fax: +254 20 828812/21

## Kuwait (Kuwait city)

Tel: +965 2428626 ext. 106  
Fax: +965 2403139

## Latvia (Riga)

Tel: +371 7 063 600  
Fax: +371 7 063 601

## Lithuania (Vilnius)

Tel: +370 5 273 8300  
Fax: +370 5 273 8333

## Luxembourg (Leudelange)

Tel: +352 493 116  
Fax: +352 492 859

## Macedonia (Skopje)

Tel: +389 23 118 010  
Fax: +389 23 118 774

## Malaysia (Kuala Lumpur)

Tel: +603 5628 4888  
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## Mauritius (Port-Louis)

Tel: +230 208 7644, 211 8624  
Fax: +230 211 4077

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Tel: +52 (55) 5328 1400 ext. 3008  
Fax: +52 (55) 5328 7467

## Morocco (Casablanca)

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## The Netherlands (Rotterdam)

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## New Zealand (Auckland)

Tel: +64 9 356 2160  
Fax: +64 9 357 0019

## Nigeria (Ikeja, Lagos)

Tel: +234 1 4937 347  
Fax: +234 1 4937 329

## Norway (Oslo)

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motor@no.abb.com

## Oman (Muscat)

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Fax: +968 2456 7406

## Pakistan (Lahore)

Tel: +92 42 6315 882-85  
Fax: +92 42 6368 565

## Panama (Panama City)

Tel: +507 209 5400, 2095408  
Fax: +507 209 5401

## Peru (Lima)

Tel: +51 1 415 5100  
Fax: +51 1 561 2902

## The Philippines (Metro Manila)

Tel: +63 2 821 7777  
Fax: +63 2 823 0309, 824 4637

## Poland (Lodz)

Tel: +48 42 299 3000  
Fax: +48 42 299 3340

## Portugal (Oeiras)

Tel: +351 21 425 6000  
Fax: +351 21 425 6390, 425 6354

## Qatar (Doha)

Tel: +974 4253888  
Fax: +974 4312630

## Romania (Bucharest)

Tel: +40 21 310 4377  
Fax: +40 21 310 4383

## Russia (Moscow)

Tel: +7 495 960 22 00  
Fax: +7 495 960 22 20

## Saudi-Arabia (Al Khobar)

Tel: +966 (0)3 882 9394, ext. 240, 254, 247  
Fax: +966 (0)3 882 4603

## Senegal (Dakar)

Tel: +221 832 1242, 832 3466  
Fax: +221 832 2057, 832 1239

## Serbia (Belgrade)

Tel: +381 11 3094 320, 3094 300  
Fax: +381 11 3094 343

## Singapore (Singapore)

Tel: +65 6776 5711  
Fax: +65 6778 0222

## Slovakia (Banska Bystrica)

Tel: +421 48 410 2324  
Fax: +421 48 410 2325

## Slovenia (Ljubljana)

Tel: +386 1 2445 440  
Fax: +386 1 2445 490

## South Africa (Johannesburg)

Tel: +27 11 617 2000  
Fax: +27 11 908 2061

## South Korea (Seoul)

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