ACS255 IP66 micro drive

Ratings and types

Type designation
This is the unique reference number (shown above and in the first column, below) that clearly identifies your drive by power rating and frame size. Once the drive's type designation has been selected, the frame size (column 7) can be used to determine the drive dimensions, shown on the next page.

Voltages
ACS255 is available in two voltage ranges:

1 = 110 to 120 V
2 = 200 to 240 V
4 = 380 to 480 V
6 = 500 to 600 V

Insert either "1", "2", "4" or "6", depending on your chosen voltage, into the type designation shown above.

Construction
"01U" within the type designation (shown above) varies depending on the drive phase and EMC filtering. Choose below the one you need.

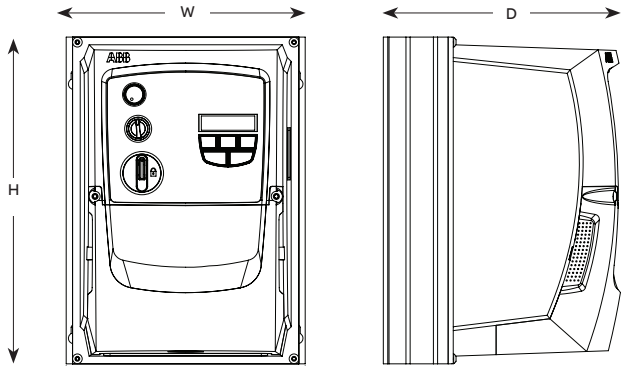
01 = 1-phase
03 = 3-phase
U = No EMC filter
F278 = Operator controls: Disconnect, FWD/ REV/OFF selector, Speed Potentiometer

Type code	Braking chopper (included)	P_N HP	P_N kW	Output current I_{2N} A	Weight lb	Frame size
1-phase supply voltage 110 to 120V, +/-10%, 3-phase output 200 to 240 V						
ACS255-01U-02A3-1+B063(+F278)	-	0.5	0.37	2.3	6.5	E1
ACS255-01U-04A3-1+B063(+F278)	-	1.0	0.75	4.3	6.5	E1
ACS255-01U-05A8-1+B063(+F278)	X	1.5	1.1	5.8	9.3	E2
1-phase supply voltage 200 to 240V, +/-10%, 3-phase output 200 to 240 V						
ACS255-01U-02A3-2+B063(+F278)	-	0.5	0.37	2.3	6.5	E1
ACS255-01U-04A3-2+B063(+F278)	-	1.0	0.75	4.3	6.5	E1
ACS255-01U-06A1-2+B063(+F278)	-	1.5	1.1	6.1	6.5	E1
ACS255-01U-07A0-2+B063(+F278)	-	2.0	1.5	7.0	6.5	E1
ACS255-01U-10A5-2+B063(+F278)	X	3.0	2.2	10.5	9.3	E2
ACS255-01U-15A3-2+B063(+F278)	X	5.0	3.7	15.3	17.0	E3
3-phase supply voltage 200 to 240 V, +/-10%						
ACS255-03U-02A3-2+B063(+F278)	-	0.5	0.37	2.3	6.5	E1
ACS255-03U-04A3-2+B063(+F278)	-	1.0	0.75	4.3	6.5	E1
ACS255-03U-06A1-2+B063(+F278)	-	1.5	1.10	6.1	6.5	E1
ACS255-03U-07A0-2+B063(+F278)	X	2.0	1.5	7.0	9.3	E2
ACS255-03U-10A5-2+B063(+F278)	X	3.0	2.2	10.5	9.3	E2
ACS255-03U-18A0-2+B063(+F278)	X	5.0	4.0	18.0	17.0	E3
3-phase supply voltage 380 to 480 V, +/-10%						
ACS255-03U-01A2-4+B063(+F278)	-	0.5	0.37	1.2	6.5	E1
ACS255-03U-02A2-4+B063(+F278)	-	1.0	0.75	2.2	6.5	E1
ACS255-03U-03A3-4+B063(+F278)	-	1.5	1.1	3.3	6.5	E1
ACS255-03U-04A1-4+B063(+F278)	-	2.0	1.5	4.1	6.5	E1
ACS255-03U-05A8-4+B063(+F278)	X	3.0	2.2	5.8	9.3	E2
ACS255-03U-09A5-4+B063(+F278)	X	5.0	4.0	9.5	9.3	E2
ACS255-03U-14A0-4+B063(+F278)	X	7.5	5.5	14.0	17.0	E3
ACS255-03U-18A0-4+B063(+F278)	X	10.0	7.5	18.0	17.0	E3
3-phase supply voltage 500 to 600 V, +/-10%						
ACS255-03U-02A1-6+B063(+F278)	X	1.0	0.75	2.1	10.6	P2
ACS255-03U-03A1-6+B063(+F278)	X	2.0	1.5	3.1	10.6	P2
ACS255-03U-04A1-6+B063(+F278)	X	3.0	2.2	4.1	10.6	P2
ACS255-03U-06A5-6+B063(+F278)	X	5.0	4.0	6.5	10.6	P2
ACS255-03U-09A0-6+B063(+F278)	X	7.5	5.5	9.0	10.6	P2
ACS255-03U-12A0-6+B063(+F278)	X	10.0	7.5	12.0	16.1	P3
ACS255-03U-17A0-6+B063(+F278)	X	15.0	11.0	17.0	16.1	P3

P_N for kW = Typical motor power in 400 V at normal use
P_N for hp = Typical motor power in 460 V at normal use
I_{2N} for A = Continuous rms current. 50% overload is allowed for one minute in ten minutes.

ACS255 IP66 micro drive

Dimensions and weights

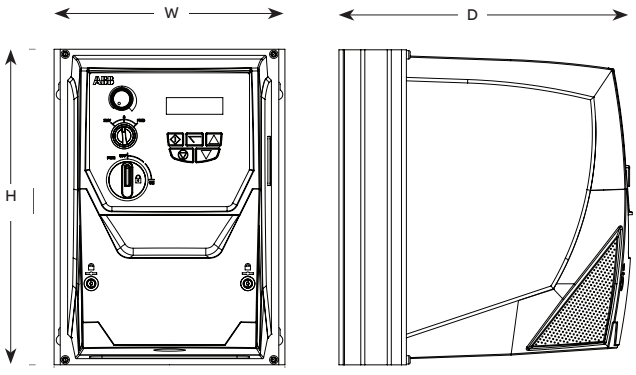


120, 240, 480 V

IP66 120, 240, 480V

Frame size	Height		Width		Depth		Weight		Dimension drawing
	in	mm	in	mm	in	mm	lb	kg	
E1	9.13	232	6.34	161	7.05	179	6.50	2.95	3AXD10000274009
E2	10.12	257	7.40	188	7.34	186	9.26	4.20	3AXD10000274011
E3	12.20	310	8.29	210	9.00	229	16.97	7.70	3AXD10000274012

H = Height
W = Width
D = Depth



600 V

IP66 600V

Frame size	Height		Width		Depth		Weight		Dimension drawing
	in	mm	in	mm	in	mm	lb	kg	
P2	10.12	257	7.40	188	9.41	239	10.60	4.80	3AXD10000274017
P3	12.20	310	8.29	211	9.88	251	16.10	7.30	3AXD10000274018

H = Height
W = Width
D = Depth

Cooling

Cooling air flow for IP20 drives

IP20 drives are designed to be installed in a protective enclosure. Heat dissipation and air flow values are given to assist with sizing enclosure sizes and cooling provisions. ACS255 drives 1 HP and above are fitted with heat sink cooling fans as standard. Drives below 1 HP 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 and must not be above the maximum ambient temperature of 40 °C (50 °C with derating on IP20 drives only). For more specific limits see the individual Data Sheet pages (for IP20 & IP66 drives) in this catalog.

Cooling air flow

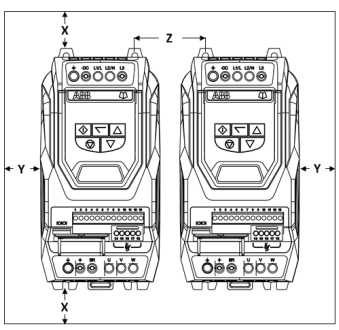
Type designation	Frame size	Heat dissipation		Air flow	
		W	BTU/hr	m^3/h	ft^3/min
1-phase AC supply, 110 to 120 V					
ACS255-01U-02A3-1	E1	11	38	19	11
ACS255-01U-04A3-1	E1	23	77	19	11
ACS255-01X-05A8-1	E2	33	113	44	26
3-phase AC supply, 500 to 600 V					
ACS255-03U-02A1-6	P2	23	77	19	11
ACS255-03U-03A1-6	P2	45	154	19	11
ACS255-03U-04A1-6	P2	66	225	19	11
ACS255-03U-06A5-6	P2	120	409	19	11
ACS255-03U-09A0-6	P2	165	563	19	11
ACS255-03U-12A0-6	P3	225	768	44	26
ACS255-03U-17A0-6	P3	330	1126	44	26
ACS255-03U-22A0-6	P3	450	1535	44	26

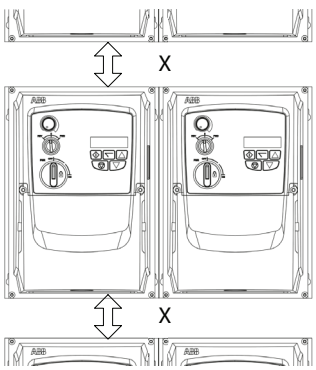
Note: IP66 drives are designed to be mounted outside of an enclosure. The heat sink is designed for maximum cooling with natural convected airflow.

Free Space Requirements

Enclosure Type	Frame size	Space Above & Below (X)		Space Either Side (Y)		Space Between (Z) [1]	
		in	mm	in	mm	in	mm
IP20	1	1.97	50	1.97	50	1.30	33
IP20	2	2.95	75	1.97	50	1.81	46
IP20	3	3.94	100	1.97	50	2.05	52
IP66	All	7.87	200	0.39	10	0	0

Notes:
1) Dimension Z assumes that the drives are mounted side by side with no clearance. For the IP66 drives, can be installed side-by-side with the heatsink flanges touching. This gives adequate ventilation space between drives.
2) Drive must be installed on a vertical flat surface that is able to support the weight of the drive.
3) Spacing requirements are guidelines only and do not take into account other sources of heat in the environment. Operating ambient temperature of the drive must be maintained at all times.





Fuses and cable sizes

The following table provides the output current rating information for the various ACS255 models. ABB Drives always recommend that selection of the correct ACS255 is based upon the motor full load current at the incoming supply voltage.

Cable dimensioning for nominal rated currents is shown in the table below together with the corresponding fuse types for short-circuit protection of the input power cable.

The rated fuse currents given in the table are the maximums for the mentioned fuse types. If smaller fuse ratings are used, check that the fuse rms current rating is larger than the nominal input current. If 150% output power is needed, multiply nominal input current by 1.5.

Check that the operating time of the fuse is below 0.5 seconds. The operating time depends on the fuse type, the supply network impedance as well as the cross-sectional area, material and length of the supply cable. In case the 0.5 seconds operating time is exceeded with the gG or T fuses, ultra rapid (aR) fuses in most cases reduce the operating time to an acceptable level.

Type Code	Power	Fuse		Maximum Supply and PE Cable Size		Nominal Output Current	Motor Cable Size		Max Motor Cable Length	Frame Size
	HP	A				A				
		gG	UL Class CC or J	mm^2	AWG		mm^2	AWG	m	
1-phase 110V...115V AC (+/-10%) - 3 Phase 230V Output										
ACS255-01U-02A3-1	0.5	10	10	8	8	2.3	1.5	14	100	E1
ACS255-01U-04A3-1	1	25	20	8	8	4.3	1.5	14	100	E1
ACS255-01U-05A8-1	1.5	32	30	8	8	5.8	1.5	14	100	E2
1-phase 200...240V AC (+/-10%) - 3 Phase Output										
ACS255-01U-02A3-2	0.5	10	6	8	8	2.3	1.5	14	100	E1
ACS255-01U-04A3-2	1	10	10	8	8	4.3	1.5	14	100	E1
ACS255-01U-06A1-2	1.5	16	15	8	8	6.1	1.5	14	100	E1
ACS255-01U-07A0-2	2	16	17.5	8	8	7	1.5	14	100	E2
ACS255-01U-10A5-2	3	25	25	8	8	10.5	1.5	14	100	E2
ACS255-01U-15A3-2	5	40	40	8	8	15.3	4	10	100	E3
3-phase 200...240V AC (+/-10%) - 3 Phase Output										
ACS255-03U-02A3-2	0.5	6	6	8	8	2.3	1.5	14	100	E1
ACS255-03U-04A3-2	1	10	10	8	8	4.3	1.5	14	100	E1
ACS255-03U-06A1-2	1.5	10	15	8	8	6.1	1.5	14	100	E1
ACS255-03U-07A0-2	2	16	15	8	8	7	1.5	14	100	E2
ACS255-03U-10A5-2	3	16	17.5	8	8	10.5	1.5	14	100	E2
ACS255-03U-18A0-2	5	32	30	8	8	18	2.5	10	100	E3
3-phase 380...480V AC (+/-10%) - 3 Phase Output										
ACS255-03U-01A2-4	0.5	6	6	8	8	1.2	1.5	14	100	E1
ACS255-03U-02A2-4	1	6	6	8	8	2.2	1.5	14	100	E1
ACS255-03U-03A3-4	1.5	10	10	8	8	3.3	1.5	14	100	E1
ACS255-03U-04A1-4	2	10	10	8	8	4.1	1.5	14	100	E2
ACS255-03U-05A8-4	3	16	10	8	8	5.8	1.5	14	100	E2
ACS255-03U-09A5-4	5	16	15	8	8	9.5	1.5	14	100	E2
ACS255-03U-14A0-4	7.5	25	25	8	8	14	1.5	12	100	E3
ACS255-03U-18A0-4	10	32	30	8	8	18	2.5	10	100	E3
3-phase 500...600V AC (+/-10%) - 3 Phase Output										
ACS255-03U-02A1-6	1	10	6	1.5	14	2.1	1.5	14	100	P2
ACS255-03U-03A1-6	2	10	6	1.5	14	3.1	1.5	14	100	P2
ACS255-03U-04A1-6	3	10	10	1.5	14	4.1	1.5	14	100	P2
ACS255-03U-06A5-6	5	10	10	1.5	14	6.5	1.5	14	100	P2
ACS255-03U-09A0-6	7.5	16	15	2.5	12	9	1.5	14	100	P2
ACS255-03U-12A0-6	10	25	20	4	10	12	1.5	14	100	P3
ACS255-03U-17A0-6	15	25	25	4	8	17	2.5	10	100	P3
ACS255-03U-22A0-6	20	40	35	10	8	22	4	10	100	P3

Notes:

1) Larger fuses must not be used when the input power cable is selected according to this table.

2) For UL compliant installation, use Copper wire with a minimum insulation temperature rating of 70°C, UL Class CC or Class J Fuses

3) Other fuse types can be used if they meet the ratings and the melting curve of the fuse does not exceed the melting curve of the fuse mentioned in this table.

4) The maximum motor cable length stated applies to using a shielded motor cable. When using an unshielded cable, the maximum cable length limit may be increased by 50%. When using the ABB Drives recommended output choke, the maximum cable length may be increased by 100%

5)The PWM output switching from any inverter when used with a long motor cable length can cause an increase in the voltage at the motor terminals, depending on the motor cable length and inductance. The rise time and peak voltage can affect the service life of the motor. ABB Drives recommend using an output choke for motor cable lengths of 50m or more to ensure good motor service life