

Technical data for low power AC drives type ACS 140

Mains connections

Voltage:

- 1 and 3 phase, 200 to 240 V ± 10 %
- 3 phase, 380 to 480 V ± 10 %

Frequency: 48 to 63 Hz

Fundamental power factor: approximately 0.98

Motor connection

Voltage: 3 phase, from 0 to U_{mains} ;
 U_{max} at field weakening point

Frequency: 0 to 250 Hz

Continuous load capacity

(constant torque at maximum ambient temperature of 40 °C):

Comp-AC Drive rated current I_2

Overload capacity at maximum ambient temperature of 40 °C:

- constant torque: $1.5 \cdot I_2$ for one minute every ten minutes
- constant torque: $1.25 \cdot I_2$ for two minutes every ten minutes

Ratings for short time, intermittent and periodic duty cycles are available upon request.

Nominal motor frequency: 50 to 250 Hz

Nominal motor voltage:

- 200 to 240 V
- 380 to 480 V

Switching frequency *):

- standard 4 kHz
- low noise 8 kHz

Acceleration time: 0.1 to 1800 s

Deceleration time: 0.1 to 1800 s

Control connections

Two programmable analogue inputs:

- voltage signal: 0 (2) to 10 V, 190 k'ohms single ended
- current signal: 0 (4) to 20 mA, 500 ohms single ended
- potentiometer reference: 10 V \pm 2 % max. 10 mA, 1 k'ohms $\leq R \leq$ 10 k'ohms
- response time: \leq 60 ms
- resolution: 0.1 %
- accuracy: \pm 1 %

One programmable analogue output:

- 0 (4) to 20 mA, load < 500 ohms

Auxiliary voltage: 12 V DC, max 100 mA, 24 VDC, max 250 mA

Five programmable digital inputs:

- 12 V DC, PNP and NPN logic (using internal supply)
- 24 V DC, PNP and NPN logic (using external supply)
- input impedance: 1.5 k'ohms
- response time: \leq 9 ms

Two programmable relay outputs:

- switching voltage: 12 to 250 V AC / 30 V DC
- continuous current: 10 mA to 2 A

Serial communication for panel or external control:

Modbus protocol

Programmable features *)

Seven application macros for easy configuration:

- Factory
- ABB Standard
- 3-Wire
- Alternate
- Motor Potentiometer
- Hand-Auto
- PID-Control
- Pre-magnetize

Output current and frequency limit

Two acceleration ramps

Two deceleration ramps

PID-control

Flying start

Seven preset speeds

Two skip frequencies

IR compensation

Protection

Over current

Current regulation limit: 0.5 to $1.5 \cdot I_2$

Current I^2t protection

Over voltage

Under voltage

Over temperature: limit $90 / 95$ °C, heatsink

I/O terminal: short circuit protection

Auxiliary voltage: short circuit protection

Earth-fault protection:

protects the drive in case of earth-fault at motor output

Output short circuit protection

Input phase loss (3-phase units only)

Power-loss ride-through

Motor overload protection

Stall protection

Serial communication error

Loss of AI signal

Environmental limits

Ambient operating temperature:

- output current = I_2 , fswitch = 4 k Hz: 0 to 40 °C

- output current = $0.8 \cdot I_2$, fswitch = 4 k Hz: 40 °C to 50 °C

- output current = I_2 , fswitch = 8 k Hz: 0 to 30 °C

- output current = $0.9 \cdot I_2$, fswitch = 8 k Hz: 30 °C to 40 °C

Installation altitude:

- output current = I_2 : 0 to 1000 m

- output current derated 1% for every 100 m

above 1000 m: max. altitude 2000 m

Relative humidity and corrosion: less than 95% (non-condensing)

No corrosive gases or liquids allowed (IEC 721-3-3)

Enclosure

Protection degree: IP 20

Colour: NCS 1502-Y, RAL 9002, PMS 420 C

Product conformity

- Low Voltage Directive 73/23/EEC with amendments
 - EMC Directive 89/336/EEC with amendments
- (Note: With Comp-AC Drives no filter is needed in Second Environment)

- Quality systems ISO 9001 and ISO 14001
- Approvals CE and UL

Accessories

- Control panels ACS 100-PAN
- Extension cable ACS 100-EXT
- RFI input filters and output chokes
- Braking units
- RS 485/232 Adapter

ABB Drive Ware

- Comp-AC Drives are supported by PC software packages such as Drives Window

Standard Ratings, ambient temperature 40°C

Rated motor power P_N (KW)	Rated output current I_2 (A)	Maximum output current I_{1max} (A)*	Type Designation	Rated Input current I_1	Dimensions Height* Width* Depth (mm) for IP20	Weight (kg) for IP 20
0.37	2.2	3.3	ACS141-k75-1	6.9	146*80*138	0.9
0.55	3.0	4.5	ACS141-1k1-1	9.0	146*80*175	1.2
0.75	4.3	6.5	ACS141-1k6-1	10.8	146*80*175	1.2
1.1	5.9	8.9	ACS141-2k1-1	14.8	218*80*210	2.2
1.5	7.0	10.5	ACS141-2k7-1	18.2	218*80*210	2.2
2.2	9.0	13.5	ACS141-4k1-1	24.5	245*80*228	2.7
0.37	2.2	3.3	ACS143-k75-1	3.2	146*80*138	0.8
0.55	3.0	4.5	ACS143-1k1-1	4.2	146*80*175	1.1
0.75	4.3	6.5	ACS143-1k6-1	5.3	146*80*175	1.1
1.1	5.9	8.9	ACS143-2k1-1	7.2	218*80*210	2.0
1.5	7.0	10.5	ACS143-2k7-1	8.9	218*80*210	2.0
2.2	9.0	13.5	ACS143-4k1-1	12.0	245*80*228	2.5
0.75	2.0	3.0	ACS143-1k6-3	2.5	146*80*175	1.1
1.1	2.8	4.2	ACS143-2k1-3	3.4	218*80*210	2.0
1.5	3.6	5.4	ACS143-2k7-3	4.6	218*80*210	2.0
2.2	4.9	7.4	ACS143-4k1-3	6.5	245*80*228	2.5