

Technical data

Mains connection	
Input voltage and output power range	1-phase, U1 240V +10%/-15% 3-phase, U1 200 to 240V, 380 to 480V, 575 to 600V +10%/-15% ACS580-01: 1 to 350HP ACS580-07: 200 to 700HP ACS580-0P: 1 to 200HP ACS580-0P (bypass): 1 to 350HP*** Auto-identification of supply voltage
Frequency	From 47 to 63 Hz
Power factor	$\cos\phi = 0.98$
Efficiency (at nominal power)	98%
Efficiency class (IEC 61800-9-2)	IE2
Motor connection	
Voltage	0 to U_n , 3-phase
Frequency	0 to 500 Hz
Motor control	Scalar and vector control
Torque control	Torque step rise time: <10 ms with nominal torque Non-linearity: $\pm 5\%$ with nominal torque
Speed control	Static accuracy: 20% of motor nominal slip Dynamic accuracy: 1% seconds with 100% torque step
Maximum recommended motor cable length	R1: 100 m R2: 200 m R3-R11: 300 m
Supported motor types	Asynchronous AC induction motors (IM) Permanent magnet motors (PMSM/IPM, PMSM/SPM) Synchronous reluctance motors (SynRM) Permanent magnet assisted synchronous reluctance motors (PMA-SynRM, SynRM2, EC Titanium)
Product compliance [†]	
CE UL 61800-5-1: 1st edition Low Voltage Directive 2014/34/EU, EN 61800-5-1: 2007 Machinery Directive 2006/42/EC, EN 61800-5-2: 2007 EMC Directive 2014/30/EU, EN 61800-3: 2004 + A1: 2012 RoHS directive 2011/65/EU Quality assurance system ISO 9001 and Environmental system ISO 14001 Waste electrical and electronic equipment directive (WEEE) 2002/96/EC RoHS directive 2011/65/EU cULus, CSA, EAC, RCM, KC TÜV Nord (safety functions) UKCA Ecodesign (EU) 2019/1781	
Harmonics compliance	
Built-in optimized DC choke as standard in ACS580-01 meets the requirements of IEC 61000-3-12:2011.	
EMC according to EN 61800-3:2004 + A1:2012	
Frames R1 to R9 with built-in C2 category filter as standard Frames R10 and R11 with preconfigured built-in C3 category filter option	
Inputs and outputs (standard configuration)	
2 analog inputs	Selection of Current/Voltage input mode is user programmable.
Voltage signal	0 (2) to 10 V, R in >200 k Ω
Current signal	0 (4) to 20 mA, R in = 100 Ω
Potentiometer reference value	10 V $\pm 1\%$ max. 20 mA
2 analog outputs	AO1 is user programmable for current or voltage. AO2 current
Voltage signal	0 to 10 V, R load: >100 k Ω
Current signal	0 to 20 mA, R load: <500 Ω
Internal auxiliary voltage	24 V DC $\pm 10\%$, max. 250 mA
6 digital inputs	12 to 24 V DC, 24 V AC, Connectivity of PTC sensors supported by a single digital input. PNP or NPN connection (5 DIs with NPN connection).
3 relay outputs	Maximum switching voltage 250 V AC/30 V DC Maximum continuous current 2 A rms

Supported thermistors	Any of the analog inputs, or digital input 6, are configurable for PTC with up to 6 sensors. Both analog outputs can be used to feed the PT100, PT1000, KTY83, KTY84 or Ni1000 sensors. For more detailed information please see the ACS580 hardware manual.	
Environmental limits		
Ambient temperature		
Transport Storage	-40 to +70 °C -40 to +70 °C	
Operation area	ACS580-01: -15 to +50 °C. No frost allowed R1 to R9 from +40 to +50 °C with derating ACS580-04: -15 to +55 °C. No frost allowed R10 to R11 from +40 to +55 °C with derating ACS580-07: 0 to +40 °C. No frost allowed R6 to R11 from +40 to +50 °C with derating	
Cooling method	Air-cooled	
Air-cooled	Dry clean air	
Altitude	0 to 1,000 m Without derating 1,000 to 4,000 m With derating of 1%/100 m For more detailed information please see the ACS580 hardware manual	
Relative humidity	5 to 95%, no condensation allowed	
Degree of protection	ACS580-01: UL (NEMA) Type 1 / IP21 as standard UL (NEMA) Type 12 / IP55 as option (frames R1 to R9) UL (NEMA) Type 4X / IP66 as option (frames R1 to R3) ACS580-07: Cabinet-built frames R8 to R11 UL Type 12 (IP54) is North America standard ACS580-0P: UL (NEMA) Type 1 / IP21 as standard UL (NEMA) Type 12 / IP55 and UL Type 3R as options ACS580-0P (bypass): UL (NEMA) Type 1, 12, 3R	
Functional safety	Safe torque off (STO according EN 61800-5-2) IEC 61508 ed2: SIL 3. IEC 61511: SIL 3. IEC 62061: SIL CL 3. EN ISO 13849-1: PL e	
Contamination levels	No conductive dust allowed	
Storage	IEC 60721-3-1. Class 1C2 (chemical gases). Class 1S2 (solid particles) *)	
Operation	IEC 60721-3-3. Class 3C2 (chemical gases). Class 3S2 (solid particles) *)	
Transportation	IEC 60721-3-2. Class 2C2 (chemical gases) Class 2S2 (solid particles) *)	
External power supply		
Standard:		
ACS580-01 frames R6-R9, ACS580-07 all frames	1.5 A at 24 V AC/DC ±10%	
With option CMOD-01, -02:	1.04 A at 24 V AC/DC ±10%	
ACS580-01 frames R1-R5		
Communication		
Protocol as standard (EIA-485): Modbus RTU. Protocols available as option: EtherNet/IP, EtherNet POWERLINK, Modbus/TCP, EtherCAT, PROFINET IO, PROFISafe (for STO and SS1-t functions), CANopen, ControlNet, DeviceNet and Profibus DP.		
Protection functions		
Overvoltage controller Undervoltage controller Motor and motor cable earth-leakage monitoring Motor and motor cable short-circuit protection Motor over-temperature protection Output and input switch supervision Motor overload protection Phase-loss detection (both motor and supply) Under load supervision (belt loss detection) Overload supervision Stall protection Loss of control reference		

^{*)} C = Chemically active substances

S = Mechanically active substances

[†] US ratings 343A-2 and 396A-2 have not been verified to comply with CSA, CE or IEC directives or any standard other than UL 61800-5-1: 1st edition.

*** 3-phase, 208/230V, 460V, 575V Wye, 60 Hz