# ACS580-01, wall-mounted single drives

## Overview

**Save time and money**
The ACS580 is simple to install, commission, use, expand, and even upgrade, when the time comes. A compact design makes handling the units easy and with all the essential features built-in, commissioning and setup time is greatly reduced by leveraging the Primary Settings menus and assistants. The assistant control panel, which provides 16 different language options, can be upgraded to an optional Bluetooth control panel to enable wireless commissioning and monitoring.

**Keep your system running smoothly**
ACS580 drives are designed for customers who value reliability, high quality, and robustness in their applications. The product features, such as coated boards and compact UL (NEMA) Type 12 / IP55 enclosure, make the ACS580 suitable for harsh conditions. Additionally, all ACS580 drives and their protective functions are thoroughly tested for performance at maximum temperature with nominal loads.

**Contain costs to improve your bottom line**
When you think of VFDs, you likely think of energy savings – and rightly so. Energy savings alone can easily justify the cost of a VFD, even on small applications that traditionally use starters. Just by upgrading from constant to variable speed, you can create energy savings of up to 50%. Add to that the ability to track the savings, in both energy and dollars, so you can evaluate the effectiveness of your system, and adjust accordingly for even more savings.

**Partner with ABB to achieve success**
We encourage you to collaborate with ABB's factory and local VFD experts who are available throughout the lifecycle of your system. You have access to this team of experts to assist with developing functional, cost-effective, and easy-to-maintain systems, improving designs to meet specific project requirements, ensuring that you include the latest technologies, and training your staff on appropriate topics. Our goal is to ensure your success.

**Main features include:**
- Enclosure class UL (NEMA) Type 1 or 12 / IP21 or IP55
- Compact design for easy installation, commissioning and maintenance
- Incoming air temperature measurement for protecting the drive from different temperature related failures
- Integrated safety including Safe Torque Off (STO) as standard
- Supports various motor types
- Intuitive control panel with USB connection
- Drive Composer PC tool for commissioning and configuration
- Standard control program - common software used throughout the ACS580 drive series
- Control unit supporting a wide range of fieldbuses and input/output options
- Standard built-in Modbus RTU via EIA-485
- Coated boards as standard
- Controllable cooling fan
- Built-in braking chopper (for frame sizes R1 to R3)
- Built-in choke
- Adaptive programming
- Color coded connection terminals

**Applications:**
- Constant torque, variable torque or constant horsepower applications
- New installation, replacement and original equipment manufacture (OEM) use

**Capabilities:**
- Open loop vector or scalar (V/Hz) control with peak overload of 150% for performance applications
- ABB's all-compatible keypad, programming structure and drive options
- Designed for demanding applications with high starting torque, speed and torque accuracy, and flexible programming

# ACS580, wall-mounted single drives

Type code sheet

| A | C | S | 5 | 8 | 0 | - | 0 | 1 | - | | | | A | - | | + | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Product series | | | | | | | Construction | | | Size | | | | | Voltage | | Options | | | |

| - | 0 | 1 |
|---|---|---|

**Construction**

01 = Wall-mounted, UL (NEMA) Type 1 / IP21, assistant control panel, built in choke, EMC filter, standard control program, Safe Torque Off, conduit box, braking chopper in frame sizes R1, R2, and R3, coated boards, quick guides with default set of languages, CD including all manuals with all available languages.

| - | | | | A |
|---|---|---|---|---|

**Size**

(Output current rating, see table below for details)
Requires 4-digit Amp rating in type code

| Voltage | Frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 |
| 240V | 04A6<br>06A6<br>07A5<br>10A6<br>017A | 024A<br>031A | 046A<br>059A | 075A | 088A<br>114A | 143A | 169A<br>211A | 273A | |
| 480V | 02A1<br>03A0<br>03A5<br>04A8<br>06A0<br>07A6<br>012A | 014A<br>023A | 027A<br>034A<br>044A | 052A<br>065A<br>077A | 078A<br>096A | 124A | 156A<br>180A | 240A<br>260A | 302A<br>361A<br>414A |
| 575V | | 02A7<br>03A9<br>06A1<br>09A0<br>011A<br>017A | 022A<br>027A<br>032A | | 041A<br>052A<br>062A<br>077A | | 099A<br>125A | 144A | 192A<br>242A<br>271A |

| - | |
|---|---|

**Voltage rating**

2 = 208...240 VAC
4 = 380...500 VAC
6 = 525...600 VAC

| + | | | | |
|---|---|---|---|---|

**Option codes**

Letter code followed by 3 digit number (see option code pages for details)

# ACS580, wall-mounted single drives

Data sheet

| | | |
|---|---|---|
| **Input ratings** | Input voltage range | 208-240 V; 380-500 V; 525-600 V |
| | Input voltage tolerance | +10%/-15% |
| | Phase | Three phase |
| | Frequency | 47 to 63 Hz |
| | Short circuit rating (UL 508c) | 100,000 rms symmetrical amperes up to 600 V when input cables protected by class T or similar fuses |
| **Output ratings** | Horsepower | 0.75 - 100 HP @ 230 VAC |
| | | 0.75 - 350 HP @ 480 VAC |
| | | 2 - 250 HP @ 575/600 VAC |
| | Overload capacity | Heavy duty = 50% for 60 seconds every 5 minutes |
| | | Light duty = 10% for 60 seconds every 5 minutes |
| | Frequency | 0-500 Hz |
| | Voltage | 0 to maximum input voltage (RMS) |
| | Motor types | Asynchronous AC induction motors, permanent magnet synchronous motors and synchronous reluctance motors |
| **Protective features** | Overcurrent | Excessive output current |
| | DC overvoltage | High DC bus |
| | Overtemp | Drive heatsink above operating temperature, max ambient temperature exceeded |
| | Short circuit | Short on motor output terminals |
| | Undervoltage | Low voltage on drive input |
| | Loss of reference | Analog input programmed for 4-20 ma but signal less than 4 ma |
| | Motor overtemp | Excessive estimated motor temperature |
| | Loss of keypad | Drive will trip if under keypad control and keypad communication is lost |
| | Motor stall | Motor cannot achieve commanded speed due to excessive load |
| | Ground fault | Ground fault detected in motor or motor cabling |
| | Motor phase fault | Loss at one of the motor phases |
| **Environmental** | Temperature | -15 to +50 °C (5 to 122 °F). 0 to -15 °C (32 to 5 °F): No frost allowed. Output derated above +40 °C (104 °F) |
| | Cooling | Forced air |
| | Enclosure | UL (NEMA) Type 1 / IP21, UL (NEMA) Type 12 / IP55 |
| | Altitude | Sea level to 3300 ft. (1000 m) Derate 1% per 330 ft. (100 m) up to 13,128 ft. (4000 m) |
| | Humidity | 0 to 95% RH non-condensing |
| | Vibration | Max. 1 mm (0.04 in.) (5 to 13.2 Hz), max. 7 m/s2 (23 ft/s2) (13.2 to 100 Hz) sinusoidal |
| **Keypad display** | Display | LCD graphical |
| | Keys | 10 key keypad with tactile response |
| | Functions | Output status monitoring, digital speed control, parameter setting and display, diagnostic and fault log display, motor run, local/remote toggle, graphical monitoring |
| | Remote mount | Keypad may be mounted up to 9 ft. using appropriate cable (see Options for kit) |
| | Trip | Last three faults stored in fault history |
| **Control specifications** | Switching frequency | 1, 4, 8, 12kHz (up to 150HP): 1 or 4kHz (over 150HP) |
| | Accel/decel | 0-1800 seconds |
| | Speed control accuracy | 20% of motor nominal slip |
| | Skip frequencies | Three configurable bands 0-max speed |
| | PC setup software | Drive composer, drive composer pro |
| | Maximum output frequency | 500 Hz |
| | Selectable operating modes | 2-Wire, 3-Wire, Motor Potentiometer, Hand/Auto, PID |
| **Analog inputs** | Two single ended | 0 (2) to 10 V, Rin > 312kΩ single-ended |
| | | 0 (4) to 20mA, Rin = 100 Ω single-ended |
| | Resolution | ± 1% |
| **Analog output** | Two current outputs | 0 to 20 mA, load < 500 Ω |
| | Resolution | ± 3% |
| **Digital inputs** | Six digital inputs | 15 V...24 VDC with internal or external supply |
| | Input impedance | Pull-up or pull-down (PNP or NPN) (DI1 to DI5); NPN (DI6) 2.4 kΩ |
| **Digital outputs** | Three relay outputs | Form C |
| | Maximum switching voltage | 250 VAC/30 VDC |
| | Maximum continuous current | 2 A/30 VDC or 250 VAC |
| **Safety** | Safe Torque Off (STO) | STO standard input; 17...30 VDC, 55 mA |

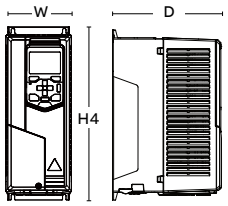
# ACS580, wall-mounted single drives

## Dimensions and weights

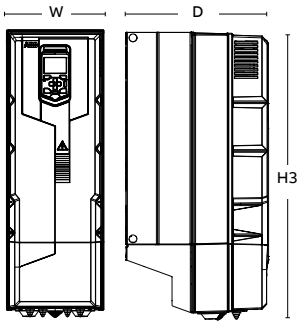
### ACS580-01, wall-mounted UL (NEMA) Type 1

| Frame size | Height (H3, H4)* | | Width (W) | | Depth (D) | | Weight | |
|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | lb | kg |
| R1 | 14.69 | 373 | 4.82 | 122 | 8.78 | 223 | 11 | 4.6 |
| R2 | 18.62 | 473 | 4.86 | 123 | 9.00 | 229 | 15 | 6.6 |
| R3 | 19.29 | 490 | 7.99 | 203 | 9.01 | 229 | 26 | 11.8 |
| R4 | 25.04 | 636 | 7.99 | 203 | 10.13 | 257 | 42 | 19.0 |
| R5 | 28.83 | 732 | 7.99 | 203 | 11.60 | 295 | 63 | 28.3 |
| R6 | 28.60 | 727 | 9.92 | 252 | 14.53 | 369 | 94 | 42.4 |
| R7 | 34.67 | 880 | 11.18 | 284 | 14.58 | 370 | 120 | 54.0 |
| R8 | 38.01 | 965 | 11.81 | 300 | 15.47 | 393 | 153 | 69.0 |
| R9 | 37.60 | 955 | 14.96 | 380 | 16.46 | 418 | 214 | 97.0 |

H3 = front overall height of drive
H4 = back overall height of drive
*H3 is listed for all drives, except R3 and R4



ACS580-01 with integrated conduit box (R3-R4)

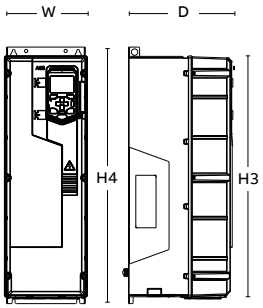


ACS580-01 with removable conduit box (R1-R2, R5-R9)

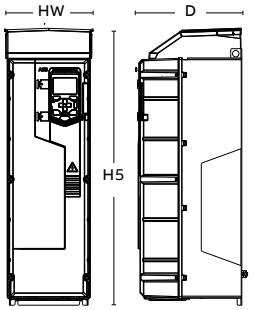
### ACS580-01, wall-mounted UL (NEMA) Type 12

| Frame size | Height (H3, H4)* | | Height (H5) | | Width (W) | | Width (HW) | | Depth (D) | | Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in | mm | in | mm | lb | kg |
| R1 | 15.86 | 403 | 17.78 | 452 | 5.06 | 129 | 5.09 | 129 | 9.17 | 233 | 11 | 4.8 |
| R2 | 19.80 | 503 | 21.49 | 546 | 5.06 | 129 | 5.10 | 130 | 9.40 | 239 | 15 | 6.8 |
| R3 | 19.29 | 490 | 20.93 | 532 | 8.11 | 206 | 8.16 | 207 | 9.32 | 237 | 29 | 13 |
| R4 | 25.04 | 636 | 27.03 | 687 | 7.99 | 203 | 8.59 | 218 | 10.44 | 265 | 45 | 20 |
| R5 | 28.83 | 732 | 32.01 | 813 | 7.99 | 203 | 8.59 | 218 | 12.59 | 320 | 64 | 29 |
| R6 | 28.58 | 726 | 34.81 | 884 | 9.92 | 252 | 11.46 | 291 | 16.40 | 417 | 95 | 43 |
| R7 | 34.66 | 880 | 40.86 | 1038 | 11.18 | 284 | 12.76 | 324 | 16.30 | 414 | 124 | 56 |
| R8 | 37.99 | 965 | 44.23 | 1123 | 11.81 | 300 | 13.80 | 351 | 17.80 | 452 | 170 | 77 |
| R9 | 37.60 | 955 | 46.75 | 1187 | 14.96 | 380 | 16.95 | 431 | 18.78 | 477 | 228 | 103 |

H3 = front overall height of drive
H4 = back overall height of drive
*H3 is listed for all drives, except R3 and R4



ACS580-01 without hood with integrated conduit box (R1-R9)



ACS580-01 with hood with integrated conduit box (R1-R9)

### ACS580-01, mounting dimensions UL (NEMA) Type 1 and UL (NEMA) Type 12

| Frame size | Height (H1) | | Width (W1) | | Depth (W2) | |
|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm |
| R1 | 12.48 | 317 | 3.86 | 98 | 3.86 | 98 |
| R2 | 16.42 | 417 | 3.86 | 98 | 3.86 | 98 |
| R3 | 18.62 | 473 | 6.30 | 160 | 6.30 | 160 |
| R4 | 24.37 | 619 | 6.30 | 160 | 3.86 | 98 |
| R5 | 22.87 | 581 | 6.30 | 160 | 3.86 | 98 |
| R6 | 20.91 | 531 | 8.37 | 213 | 6.30 | 160 |
| R7 | 22.95 | 583 | 9.65 | 245 | 6.30 | 160 |
| R8 | 25.91 | 658 | 10.33 | 262 | 8.43 | 214 |
| R9 | 25.91 | 658 | 13.58 | 345 | 7.87 | 200 |

Standard configuration dimensions for reference only.