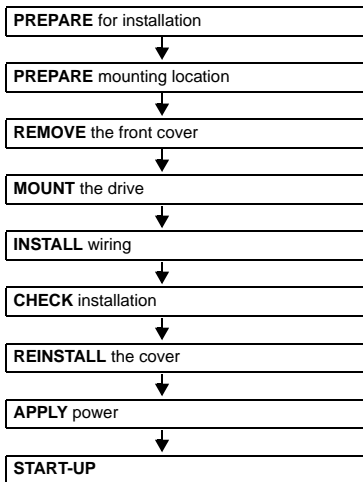# ACS550

Quick Start Guide

ACS550-U1 Drives (1...150HP), IP21 / NEMA 1 Enclosure

Overview

The installation of the ACS550 adjustable speed AC drive follows the outline below.

PREPARE for installation

↓

PREPARE mounting location

↓

REMOVE the front cover

↓

MOUNT the drive

↓

INSTALL wiring

↓

CHECK installation

↓

REINSTALL the cover

↓

APPLY power

↓

START-UP

Application

This guide provides a quick reference for installing ACS550-U1 drives having a standard enclosure.

Note: This guide does not provide detailed installation, safety or operational instructions. See *ACS550 User's Manual* for complete information.

Prepare for installation

⚠ **WARNING!** The ACS550 should ONLY be installed by a qualified electrician.

Unpack the drive

Note: Lift the ACS550 by its chassis and not by its cover.

1. Unpack the drive.
2. Check for any damage.
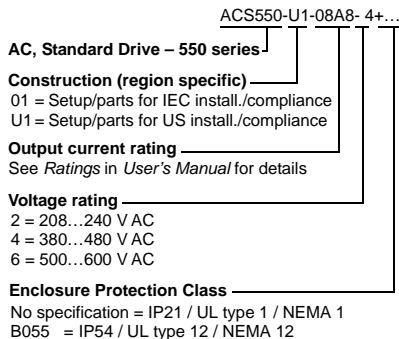3. Check the contents against the order / shipping label.

Check

- Motor compatibility – Motor type, nominal current, frequency and voltage range must match drive specifications.
- Suitable environment – Drive requires heated, indoor controlled environment that is suitable for the selected enclosure.
- Wiring – Follow local codes for wiring, circuit protection and EMC requirements.

Refer to *User's Manual* and confirm that all preparations are complete.

Drive identification

```
ACS550-01-08A8-4
U1          3~ 380...480 V
I2N/ I2hd   8.8/6.9 A
PN/Phd      5/3 Hp       Serno   *2030700001*
```

Use the following chart to interpret the type code found on the drive label.

ACS550-U1-08A8- 4+…

AC, Standard Drive – 550 series

Construction (region specific)
01 = Setup/parts for IEC install./compliance
U1 = Setup/parts for US install./compliance

Output current rating
See *Ratings* in *User's Manual* for details

Voltage rating
2 = 208…240 V AC
4 = 380…480 V AC
6 = 500…600 V AC

Enclosure Protection Class
No specification = IP21 / UL type 1 / NEMA 1
B055 = IP54 / UL type 12 / NEMA 12

Collect motor data

Collect the following data from the motor nameplate for later use in the ACS550 startup:

- Voltage _____
- Nominal motor current _____
- Nominal frequency _____
- Nominal speed _____
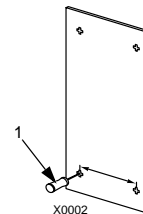- Nominal power _____

Tools required

Screwdrivers, wire stripper, tape measure, mounting screws or bolts and drill.

Prepare the mounting location

The drive requires a smooth, vertical, solid surface, free from heat and moisture, with free space for air flow – 200 mm (8 in) above and below.

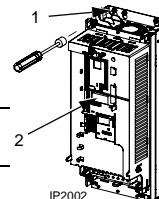1. Mark the mounting points using the template.
2. Drill the mounting holes.

X0002

Remove the front cover

1. Remove the control panel, if attached.
2. Loosen the captive screw at the top.
3. Pull near the top to remove the cover.

IP2000
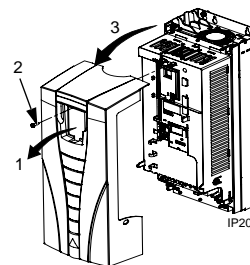
Mount the drive

1. Position the ACS550 and use screws or bolts to securely tighten all four corners.

Note: Lift the ACS550 by its metal chassis.

IP2002

2. Attach a warning sticker in the appropriate language over the existing warning on the top of the module.
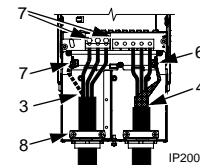


Install the wiring

Wiring power

1. Open the appropriate knockouts in the gland box.
2. Install the cable clamps for the power/motor cables.
3. On the input power cable, strip the sheathing back far enough to route individual wires.

X0004
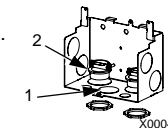
4. On the motor cable, strip the sheathing back far enough to expose the copper wire screen so that the screen can be twisted into a pig-tail. Keep the pig-tail short to minimize noise radiation. – 360° grounding under the clamp is recommended for the motor cable to minimize noise radiation. In this case, remove the sheathing at the cable clamp**.**

IP2001

5. Route both cables through the clamps.
6. Connect the pig-tail created from the motor cable screen to the GND terminal.
7. Strip and connect the power/motor wires, and the power ground wire to the drive terminals. See diagrams below, or *Power connections* in *User's Manual*.

X0005

8. Install conduit/gland box and tighten the cable clamps.
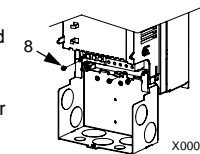
⚠ **WARNING!** For IT systems and corner grounded TN systems, disconnect the internal EMC filter by removing screws: EM1 and EM3 (frame sizes R1…R4), or F1 and F2 (frame sizes R5…R6).

Frame size R1…R4

X0033

Power input (U1, V1, W1)
Power output to motor (U2, V2, W2)
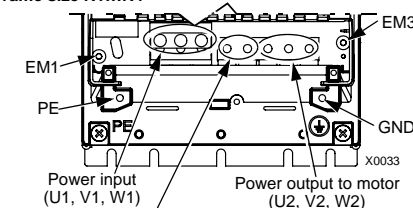
Optional braking

Frame size	Terminal labels	Brake options
R1, R2	BRK+, BRK-	Brake resistor
R3, R4	UDC+, UDC-	• Braking unit • Chopper and resistor

ABB

Frame size R5

F1
F2
PE
GND
X0035

Power input
(U1, V1, W1)

Power output to motor
(U2, V2, W2)

Optional braking

Frame size	Terminal labels	Brake options
R5, R6	UDC+, UDC-	• Braking unit • Chopper and resistor

Frame size R6

F2
F1
X0013

U1 V1 W1 UDC+ R- R+ UDC- V2 U2 W2

PE GND

Power input
(U1, V1, W1)

Power output to motor
(U2, V2, W2)
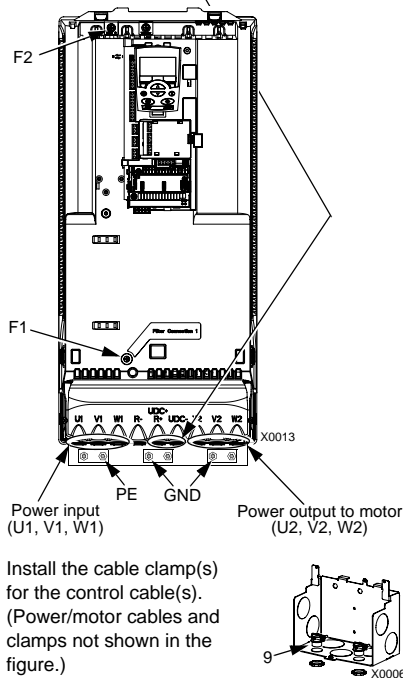
9. Install the cable clamp(s) for the control cable(s). (Power/motor cables and clamps not shown in the figure.)

9
X0006

Wiring the controls

1. Strip control cable sheathing and twist the copper screen into a pig-tail.
2. Route control cable(s) through clamp(s) and tighten clamp(s).
3. Connect the ground screen pig-tail for digital and analog I/O cables at X1-1. (Ground only at the drive end.)
4. Connect the ground screen pig-tail for RS485 cables at X1-28 or X1-32. (Ground only at the drive end.)
5. Strip and connect the individual control wires to the drive terminals. See *Control connections* below or, for more information, see *User's Manual*.

3
5
2
IP2003

Control connections

ABB Standard macro

X1	1	SCR	Signal cable shield (screen)
	2	AI1	**Ext. freq. ref. 1:** 0…10 V
	3	AGND	Analog input com.
	4	10V	Ref. voltage 10 V DC
	5	AI2	Not used
	6	AGND	Analog input com.
	7	AO1	**Output freq.:** 0…20 mA
	8	AO2	**Output current:** 0…20 mA
	9	AGND	Analog output com.

10	24V	Aux. volt. output +24 V DC
11	GND	Aux. volt. common
12	DCOM	Digital input com. for all
13	DI1	**Start/Stop:** Active = start
14	DI2	**Fwd/Rev:** Active = rev. dir.
15	DI3	**Constant speed sel.**[2]
16	DI4	**Constant speed sel.**[2]
17	DI5	**Ramp pair:** Active = 2nd ramp pair.
18	DI6	Not used

19	RO1C	Relay output 1
20	RO1A	Default operation:
21	RO1B	**Ready** = 19/21 connected
22	RO2C	Relay output 2
23	RO2A	Default operation:
24	RO2B	**Running** = 22/24 connected
25	RO3C	Relay output 3
26	RO3A	Default operation:
27	RO3B	**Fault(-1)** =25/27 connected (Fault => 25/26 connected)

Note 1. Jumper setting (two switch types possible):

J1 [2 ►] or J1 [switch] AI1: 0…10 V
AI2: 0(4)…20 mA

Note 2. Code: 0 = open, 1 = connected

DI3	DI4	Output
0	0	Reference through AI1
1	0	CONSTANT SPEED 1 (1202)
0	1	CONSTANT SPEED 2 (1203)
1	1	CONSTANT SPEED 3 (1204)

⚡ **WARNING!** The maximum voltage for digital inputs is 30 V.

6. Install the conduit/gland box cover (1 screw).

Check installation

Before applying power, perform the following checks.

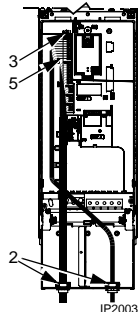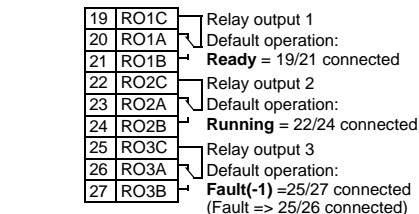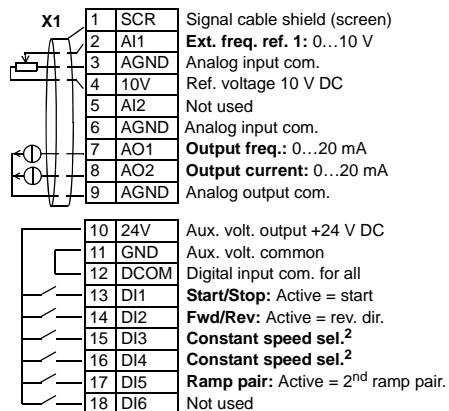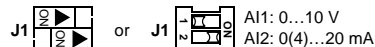| ✓	Check
	Environment conforms to specifications.
	The drive is mounted securely.
	Proper cooling space around the drive.
	Motor and driven equipment are ready for start.
	For IT systems and corner grounded TN systems: The internal EMC filter is disconnected (screws EM1 & EM3 or F1 & F2 removed).
	Drive is properly grounded.
	Input power (mains) voltage matches the drive nominal input voltage.
	The input power (mains) terminals, U1, V1, W1, are connected and tightened as specified.
	The input power (mains) fuses are installed.
	The motor terminals, U2, V2, W2, are connected and tightened as specified.
	Motor cable is routed away from other cables.
	NO power factor compensation capacitors are in the motor cable.
	Control terminals are wired and tightened as specified.
	NO tools or foreign objects (such as drill shavings) are inside the drive.
	NO alternate power source for the motor is connected – no input voltage is applied to the output of the drive.

Reinstall the cover

1. Align the cover and slide it on.
2. Tighten the captive screw.
3. Install the control panel.

1
2
3
IP2009
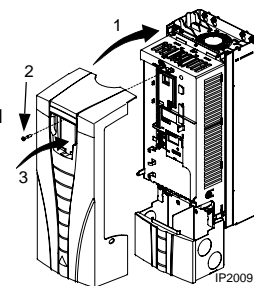
Apply power

Always reinstall the front cover before turning power on.

⚡ **WARNING!** The ACS550 will start up automatically at power up, if the external run command is on.

1. Apply input power.

When power is applied to the ACS550, the green LED comes on.

**Note:** Before increasing motor speed, check that the motor is running in the desired direction.

Start-up

In start-up, enter motor data (collected earlier) and, if needed, edit parameters that define how the drive operates and communicates.

Assistant Control Panel

The Start-up Assistant steps through typical start-up selections, and runs automatically upon the initial power up. At other times, use the steps below to run the Start-up Assistant.

1. Use the MENU key to access the Main menu.
2. Select ASSISTANTS.
3. Select Start-up Assistant.
4. Follow the screen instructions to configure the system.

LOC 49.1Hz
49.1 Hz
0.5 A
10.7 %
DIR 00:00 MENU
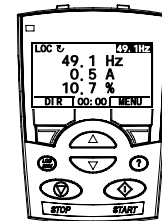
Note: For common parameters and menu items, use the Help key (?) to display descriptions.

If you encounter alarms or faults, use the Help key or refer to chapter *Diagnostics* in *User's Manual*.

Basic Control Panel

The Basic Control Panel does not include the Start-up Assistant. Refer to section *How to start up the drive* in *User's Manual* and manually enter any parameter changes desired.