Brivo Single Door Controller (B-ACS-SDC) Installation Guide

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Legal Disclaimers

Federal Communications Commission (FCC) Compliancy

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

FCC 15B Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

This telecommunication equipment conforms to NTC technical requirements.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Underwriter Laboratories (UL) Compliance

The ACS-SDC-E complies with the UL294 Standard for access control units.

Canada-Underwriters Laboratories (C-UL) Compliancy (CSA C22.2 No. 205)

For C-UL Listed applications, the unit shall be installed in accordance with Part 1 of the Canadian Electrical Code.

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UL294/ULC Listing Compliancy

UL294 Performance Levels					
Model Number	Access Control Line Security Level	Destructive Attack Level	Endurance Level	Stand-by Power Level	Conditions
Brivo ACS-SDC-E and B-ACS-SDC-E-ENC	Level 1	Level 1	Level 4	Level 1	N/A

Parts and Service

The ACS-SDC-E controller (part numbers listed below) contains no user serviceable parts.

ACS-SDC-E Part Numbers	
B-ACS-SDC-E	Brivo Single Door Controller with wall plate cover
B-ACS-SDC-E-ENC	Brivo Single Door Controller with full mounting enclosure

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Product Support

All support for this product is provided by the third-party dealer. Please contact the dealer who installed the product with questions and support requests.

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Introduction

Document Objectives

This installation guide provides step-by-step instructions for installing the Brivo ACS-SDC single door access control device. Its primary audience is trained access control installation technicians (Installers) who are responsible for installing the ACS-SDC at client sites.

The guide is also intended for IT personnel. It may be used by dealers and their sales professionals to help them conduct pre-sales, and to provide client support during the installation process. Finally, it may be used for in-house training purposes and ongoing support.

Document Layout

This guide is organized into a series of procedural checklists, detailing steps you must follow to ensure a safe and effective installation. The main sections of the guide are:

Pre-Installation Procedures
General Assembly Procedures
Configuration Procedures
Wiring Procedures

Terminology

The following is a list of terms that are used throughout this document. While some of these terms may have other meanings, the definitions provided below are the ones intended in this installation guide.

Control Panel: Brivo's Single Door Controller (ACS-SDC) is a native Ethernet enabled access control panel in a compact form factor. It is capable of supporting up to two readers; one primary access control card reader and an additional reader that can be added for in/out antipassback configurations.

Reader: The ACS-SDC includes the connection for one access control card reader with an optional second reader for in/out antipassback situations.

Brivo Access: Brivo's cloud based software application which enables the end user to manage his or her Brivo account.

Brivo Cloud Server: The off-site servers, hosted by Brivo, that are used to store an account's database. Configuration and maintenance of the control panel is managed through Brivo.

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Wire Recommendations

Signal	Belden # or Equivalent	AWG / mm	Twisted Pair	Shielded	Conductor	Max Length (ft / m)
RS-485 Comm (two wire)	9841	24 / .511	Yes	Yes	2	4000 ft / 1220 m
Power (18 gauge)	6300UE	18 / 1.024	No	No	2	500 ft / 150 m
RJ45-Ethernet	N/A	Cat5e or greater	Yes	No	8	328 ft / 100 m
CAN Bus	N/A	Cat5e or greater	Yes	No	5	1500 ft / 450 m
Fire Alarm Relay	6300FK	18 / 1.024	No	No	2	1500 ft / 450 m
Request-to-Exit	6502UE	22 / .644	No	No	4	500 ft / 150 m
	6300UE	18 / 1.024	No	No	2	500 ft / 150 m
Door Contact	6500UE	22 /.644	No	No	2	500 ft / 150 m
Transformer Block	6300UE	18 / 1.024	No	No	2	100 ft / 32 m
Power Connector	N/A	18 / 1.024	No	No	4	1 ft / .32 m
Earth Ground	N/A	12 / 2.058	No	No	1	40 ft / 12 m
Reader Option 1 (22 AWG)	6504FE	22 / .644	No	Yes	6	250 ft / 75 m
Reader Option 2 (18 AWG)	6304FE	18 / 1.024	No	Yes	6	500 ft / 150 m
Reader OSDP	6381MD	24 / .511 (Data)	Yes	Yes	2	500 ft / 150 m
		18 / .644 (Power)			2	500 ft / 150 m

Additional Resources

The following additional resources are available for the installer as well as the client.

- ACS-SDC Data Sheet
- Panel Networking Guide
- Brivo ACS-SDC Quick Start Guide
- Technical Support: 1-866-BRIVO-4-U
- www.brivo.com
- support.brivo.com (for non-hardware specific help)

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Pre-Installation Procedures

Before you begin installing the Brivo control panel, perform the following tasks to ensure a safe, speedy, and successful installation.

Understand the function of the Brivo ACS-SDC control panel

The ACS-SDC is a one door control panel with a single access point. This control panel is considered a standalone system with internet connectivity to Brivo Access. The control board has one RS485 connection for one (or optionally two) OSDP reader connections. A second reader is supported for single door in/out antipassback configurations.

The Brivo ACS-SDC uses an on-board Ethernet PoE interface to communicate via any TCP/IP networking technology that can be connected through a hub, router or switch, including satellite communications. It is an IP-enabled Access Control System that interacts with the Brivo cloud server via the Brivo Access application.

Understand Brivo ACS-SDC product compatibility

The ACS-SDC control panel allows for the attachment of one primary and one additional OSDP reader directly to the ACS-SDC control panel for the purposes of in/out scenarios (antipassback). As such, the ACS-SDC is compatible with a large number of standard OSDP reader models. Brivo products are designed to accommodate the latest updates in OSDP using RS485 reader formats. The ACS-SDC control board is compatible with OSDP readers using RS485.

A current list of compatible readers and keypads is maintained on Brivo's website at www.brivo.com. If you have a specific model of reader or keypad that is not listed on the Brivo website, please contact Technical Support at 1-866-BRIVO-4-U to determine compatibility.

Verify that the client site is ready to support the installation

1. Check with the IT department to ensure that the ACS-SDC to be installed is compatible with the company's local area network (LAN).

    a) The ACS-SDC is equipped with a standard RJ45 socket that accepts a CAT5 cable with an RJ45 plug on any 10/100 Ethernet network. Physically connecting the panel is the same as plugging any computer or other device into the LAN.

    b) Refer to connection instructions or in the Panel Networking Guide for instructions on connecting to the LAN. The Panel Networking Guide also contains a complete list of requirements regarding TCP/IP configuration parameters and information about security considerations.

2. Download the Brivo ACS-SDC Quick Start Guide from the Brivo website and provide it to the Primary Administrator. This document provides instructions for registering and configuring the control panel in the application.

3. Make sure the account has been created and the control panel is registered through Brivo. If the control panel has not been registered by the dealer, the installer may either contact Brivo Technical Support for assistance or simply register the panel directly.

4. Verify that the Primary Administrator and any other employee who will be accessing the system have Internet access on a computer equipped with a supported Web browser.

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Verify shipping contents

1. Locate and check the contents of the Control Panel kit.

   The ACS-SDC kit should contain the following parts:

   For the B-ACS-SDC-E:

   a) 1 cardboard box containing the following:

   - The B-ACS-SDC-E unit, with its identification label on the back
   - An additional loose label for reference
   - A quick start guide
   - A bag of accessory parts containing:
     - One MOV (Metal Oxide Varistor)
     - Two 120 ohm RS485 bus termination resistors.
   - Six 2k ohm end-of-line (EOL) tamper termination resistors
   - One cover plate for a single gang electrical junction box for B-ACS-SDC-E
   - One strain relief zip tie for Ethernet cable

   For the B-ACS-SDC-E-ENC:

   b) 1 cardboard box containing the following:

   - The B-ACS-SDC-E-ENC unit, with its identification label on the back
   - An additional loose label for reference
   - A quick start guide
   - A bag of accessory parts containing:
     - One MOV (Metal Oxide Varistor)
     - Two 120 ohm RS485 bus termination resistors.
   - Six 2k ohm end-of-line (EOL) tamper termination resistors
   - One enclosure with optional mechanical tamper for the B-ACS-SDC-E-ENC
   - One strain relief zip tie for Ethernet cable

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Plan your installation and decide where to install the ACS-SDC-E

1. If not using Power over Ethernet (PoE), do not place the ACS-SDC-E more than 100 feet from the 12V DC power supply transformer. This is the maximum cable run allowed by most external power supplies.

    a) The ACS-SDC does not specify a maximum wiring length between the ACS-SDC and a reader, but the keypad/reader manufacturer may. Follow manufacturer guidelines for wiring type and distance between controller and reader.

    b) Place the ACS-SDC within 500 feet of its associated electronic strike or latch.

Follow safety precautions

WARNING: Fire Code

Never connect a keypad/reader or lock to doors without first consulting the applicable fire code. You must consult with, and get approval from, local fire officials before installing locks or devices on any doors that may be fire exits. Use of egress push buttons may not be legal. Single action exits may be required. Always obtain proper permits and approvals in writing before installing equipment

WARNING: Fail Secure Mode

Do not install the system in the fail secure mode unless permitted by the local authority having jurisdiction. Doing so may cause interference with the operation of panic hardware.

WARNING: Heat and Noise

Do not install the control panel in an area that does not comply with the listed temperatures below. Doing so can cause damage to components within the control panel.

The ACS-SDC control panel is UL tested to between -35°C (-31°F) and 66°C (150°F) and EN -40°C (-40°F) to 70°C (158°F) and 85% humidity.

Do not install the control panel near or on the same circuit with devices that produce large amounts of electrical noise. This includes grinders, electric motors and blowers, electrical switch-gear and other electrically noisy equipment. Electrical noise can interfere with panel operation. If it is not possible to install the panel away from such sources of noise, it is advisable to isolate it by using a high-quality UPS (Uninterruptible Power Supply) between the AC Mains and the transformer.

- Unit is primarily for indoor use. It can be used outdoors if contained in a protected water tight enclosure.
- Power wiring attached to the ACS-SDC unit should be 18 AWG or larger.
- Category 5 cabling is the minimum performance category recommended.
- Do not connect to a receptacle controlled by a switch.
- Compliance with IEEE 802.3 (at or af) specifications was not verified as part of UL294/B.
- If powered by 12V DC, the power supply must be a UL294 listed or UL 603 listed power supply. Battery capacity for loss of primary power at least zero (0) hours.

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General Assembly Procedures

Assemble and mount ACS-SDC-E (Cover plate)

1. Mount the ACS-SDC-E unit using the method described below:

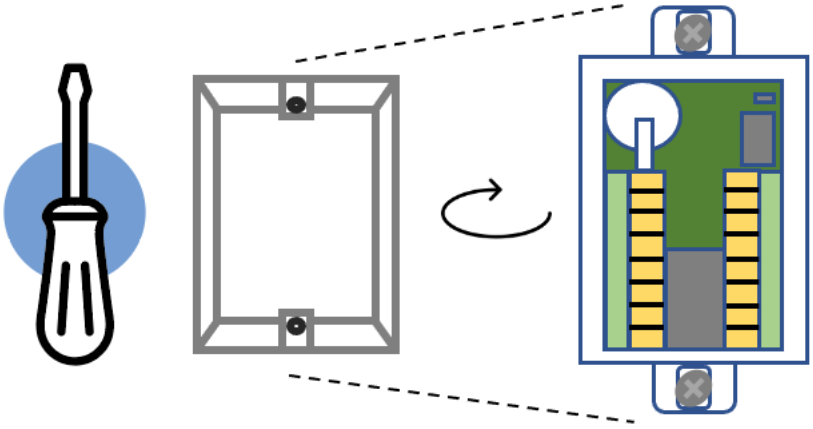
    a) This Single Door Access Control Device (ACS-SDC-E) is intended to be installed within the secure/protected area.

    b) To mount the ACS-SDC-E:

        i) Fully wire the ACS-SDC-E, ensure all cables have proper strain relief, and use the provided zip tie for additional CAT5 or greater cable strain relief.

        ii) Push the ACS-SDC-E into the junction box facing inwards.

        iii) Attach the provided cover plate.



ACS-SDC-E Mounting Diagram

Assemble and mount ACS-SDC-E-ENC (With Enclosure)

1. The controller module will come preassembled in the enclosure. Mount the enclosure using the method described below:

    a) This Single Door Access Control Device (ACS-SDC-E-ENC) is intended to be installed within the secure/protected area.

    b) To mount the ACS-SDC-E-ENC:

        i) Fully wire the ACS-SDC-E-ENC, ensure all cables have proper strain relief, and use the provided zip tie for additional CAT5 or greater cable strain relief.

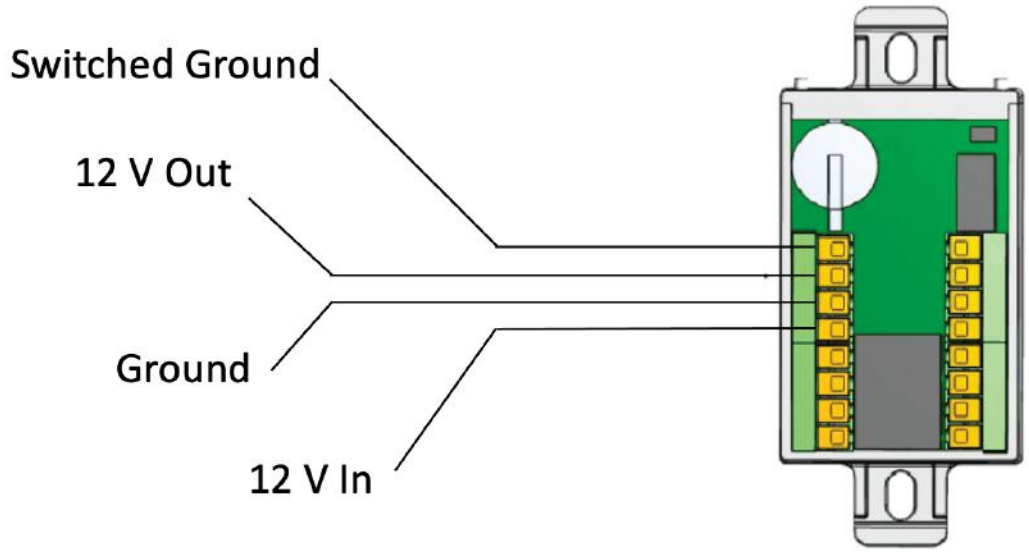
        ii) Attach the included mounting bracket to the front of the junction box or wall surface.

        iii) Once mounting and wiring is complete, attach the snap on front cover.

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OPTIONAL: If not using Power over Ethernet, wire the 12V DC In and Ground wires to an external 12V DC Power Supply

1. Use 18 AWG or 22 AWG wire (see table on Page 5) to connect the appropriate input power wires to the ACS-SDC unit.



Connecting optional External Power to the ACS-SDC

Battery

The model of coin cell battery of the Brivo ACS-SDC is CR1220 if a replacement is needed.

Model	Circuit	Voltage (VDC)	Current (A)
Brivo B-ACS-SDC	Input	12VDC	800mA

Tamper

When triggered, the ACS-SDC-E will generate a tamper event to Brivo Access. It will be visible in the real time event interface and can be configured to generate email notifications. Tamper for ACS-SDC-E is motion triggered. Once triggered, the ACS-SDC-E will stop after a period of time (10 to 15 seconds) with the reader at rest. In order for the tamper alarm to be audible, an OSDP reader must be attached to the ACS-SDC-E unit and the tamper alarm will sound through the attached OSDP reader.

The ACS-SDC-E-ENC also includes an optional mechanical tamper (DETAILS AT IN-PERSON MEETING)

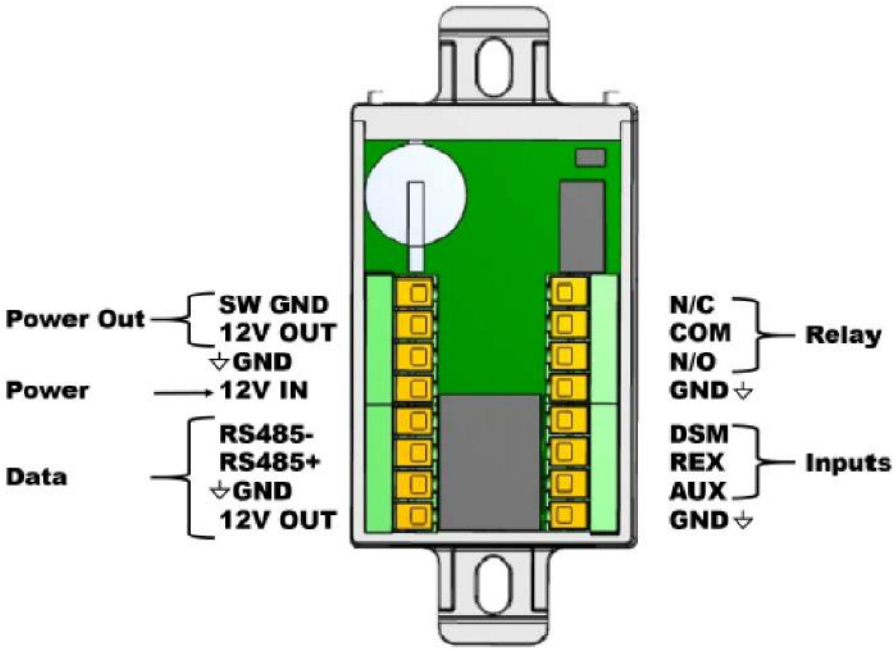
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Wiring Procedures

Provided below is the wire block diagram for the ACS-SDC unit.

> **NOTE:** The ACS-SDC has a pair of RS485 wires for connecting up to two external OSDP readers. The ACS-SDC can support one wired lock with up to two readers for use at one door for in/out antipassback situations.

For the ACS-SDC unit to be used for controlling a door, make the following connections:



ACS-SDC Wire Block Diagram

Power In

1. DC Power In is rated from 10V DC to 15V DC. DC Power shall be provided through a UL294 approved Power Supply with Class 2 limited output.

2. Optionally power can be supplied through Power over Ethernet (PoE) through the RJ45 connector.

3. In the case of both DC power and PoE, the ACS-SDC will draw power from the DC power source.

WARNING: Use of 24V DC

The Brivo ACS-SDC Single Door Controller should be powered from Power over Ethernet (PoE) or a 12V DC power supply. Do **NOT** use 24V as input power to the ACS-SDC. The only place on the ACS-SDC that you can connect 24V is the Normally Open or Normally Closed relay contacts.

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Lock Control

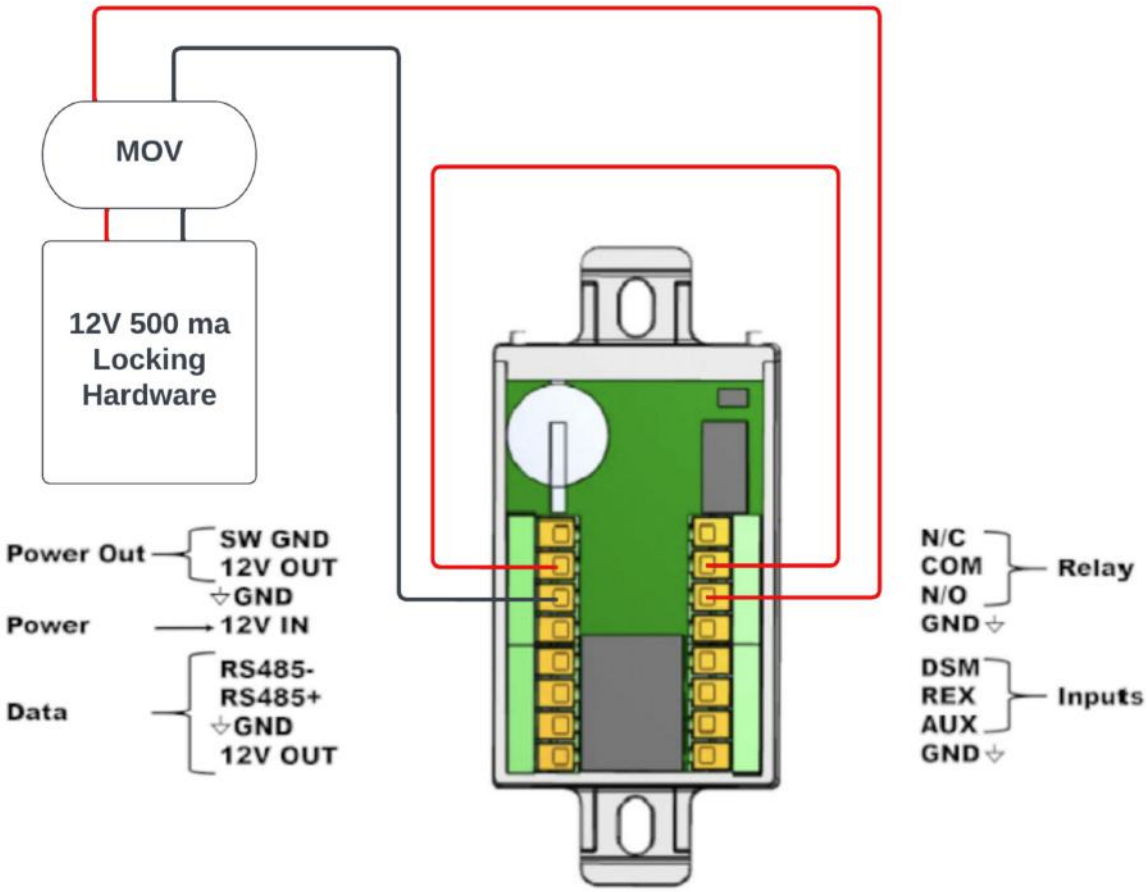
The ACS-SDC controls a single door lock through either a magnetic lock or door strike.

There are two 12V DC outputs each capable of up to 500mA that can be used to power the door strike in conjunction with the lock control relay.

Lock Relay Output

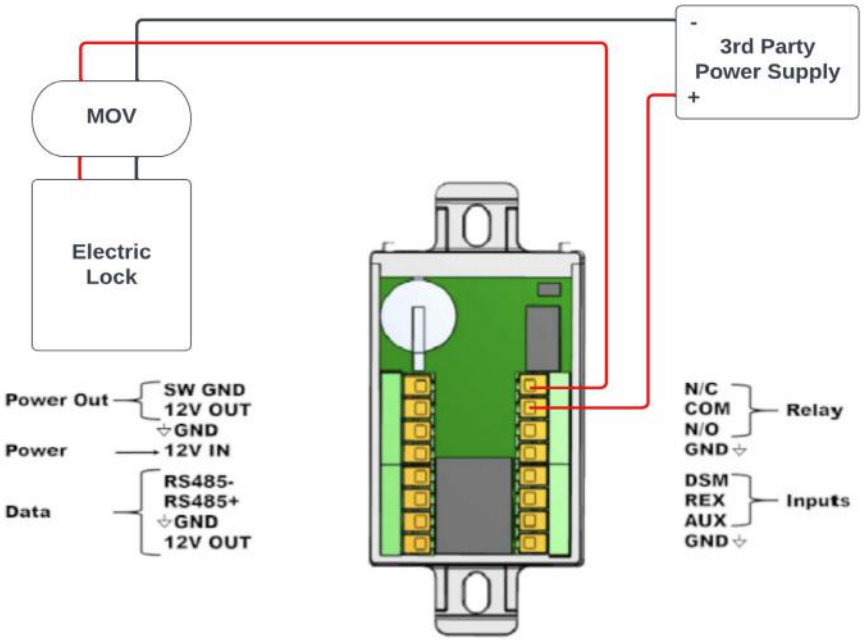
The relay is rated up to 30V DC and 2A with 0.6 power factor. If power is provided via one of the ACS-SDC's 12V outputs, the relay power would be 12V DC and the rated output of 500 mA of the ACS-SDC's limited current.

The ACS-SDC lock relay output has both Normally Open and Normally Closed contacts for wiring depending upon your application.



Lock Wiring using onboard 12V DC (normally open shown)

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Lock Wiring with 3rd Party power supply (normally closed shown)

Switched Ground (Aux Output)

Switched Ground output enables or disables a Ground connection. This acts as a electronic relay switch to Ground.

1. Configure the default power as either Power-On or Default Power-Off through the Brivo Access Account Config Tool.

Supervised Inputs

1. There are three (3) Supervised Inputs:

   - Request To Exit (REX)
   - Door Switch Monitor/Door Contact (DSM)
   - Auxiliary Input (AUX).

   The Inputs can be configured as:

   - Two (2) State (non-supervised) with Closed / Open Status.
   - Four (4) State (use of two 2Kohm End of Line Resistors) supervised with Closed / Open / Short / Cut Status.

2. If used, wire the Aux Input using the Aux wire and the Ground wire. The Aux Input can be used for a variety of purposes, and is programmed through the Brivo Access Account Config Tool.

   a) For B-ACS-SDC-E-ENC, the Aux Input can be used as a mechanical tamper input.

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WARNING: Noise Suppression

1. Install the MOV across the conductors, as close as possible to the electric strike, latch, or magnetic lock. This will normally be at the connection from the field-installed wiring to the pigtail or screw terminals of the electronic strike, latch, or magnetic lock.

2. Use the wire recommended by the manufacturer of the electric strike or latch. If no wire is recommended, use a minimum of 18 AWG wire with sufficient strands for specific electronic strike or latch.

Wire the Reader

The ACS-SDC communicates to external readers through OSDP.

One of the 12V DC outputs can be used to power the OSDP Reader(s) up to 500mA.

NOTE: For In/Out use cases, two readers can be connected to the same RS485 port, and OSDP multi-drop allows communication to both readers.

NOTE: The ACS-SDC can communicate to external readers connected through 1000 ft of twisted pair, 24 AWG wire at 9600 Baud.

1. Connect RS485- and RS485+ for reader to ACS-SDC.

2. Connect the power wire to 12V Out and GND.

OSDP / RS-485 Wiring Table

Hardware	Green Reader Wire (RS-485A)	White Reader Wire (RS-485B)
ACS6000/ACS6100	DX0 / RXD +	DX1 / RXD -
ACS300	RXD +	RXD -
ACS100	Green	White
ACS-SDC	RS485 +	RS485 -

IMPORTANT RS485 WIRING INFORMATION

NOTE: If the external OSDP reader is a significant distance from the ACS-SDC unit, then it is recommended that both ends of the RS485 bus are terminated using a 120 ohm resistor.

NOTE: When wiring the RS485 bus, use only twisted pair shielded wire.

NOTE: Input reader must be OSDP Address 1 and output antipassback reader must be OSDP Address 2.

NOTE: If needed, OSDP addressing can be performed using the Brivo programing interface (WebCLI).

Ground the ACS-SDC-E

1. When grounding the ACS-SDC unit, use 18 AWG or larger wire to connect the ACS-SDC to a suitable earth ground.

2. The ground contact point is the GND contact located directly on the ACS-SDC unit.

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Power up the ACS-SDC

NOTE: The ACS-SDC is UL listed when using DC power.

1. Ensure that all wiring is complete prior to powering up the ACS-SDC unit.
2. Plug the CAT5 or greater cable into the LAN/PoE connector.
3. If not using PoE, plug in power to the ACS-SDC unit using 12V In and Ground.
4. Optionally, you may use PoE and an external 12V power supply for redundant simultaneous power input.

LED behavior for the ACS-SDC

The ACS-SDC-E unit has five LEDs with the following colors and functions:

1. Power - [GREEN]
2. Network Link - [GREEN]
3. LED3 [RED] : OSDP Reader State Blink / Factory Reset
4. LED2 [GREEN] : PCS Connection Solid ON/OFF
5. LED1 [BLUE] : Heartbeat Blink

The ACS-SDC-E-ENC unit has five LEDs with the following colors and functions:

(IMAGE OF ENCLOSURE WITH LED DISPLAY)

Resetting the ACS-SDC to factory default

The ACS-SDC unit goes into a factory default reset sequence when the following steps are performed:

1. Press and hold the factory default reset (FDR) button for ten (10) seconds and wait for the solid red LED to light up and stay solid.
2. Release the button within three (3) seconds.
3. After releasing the button, the ACS-SDC unit will recognize that a factory reset is desired and will initiate the factory default reset procedure. As the ACS-SDC unit restarts, the firmware will automatically update. Once LED operation returns to normal, the ACS-SDC unit will have been reset.

NOTE: If the Factory Default Reset (FDR) button is released after 13 seconds or more than three seconds after the red LED is solid, a factory reset will not occur.

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Configuration Procedures

If any manual configuration is required, connect a laptop to the same local area network as the ACS-SDC unit

NOTE: The laptop and ACS-SDC unit **MUST** be on the same subnet.

1. Set your NIC interface on your laptop/PC to IP **169.254.242.122** and net mask **255.255.255.0** .
2. Connect the CAT5 or greater cable from the NIC interface on the laptop to the PoE network switch.
3. Connect another CAT5 or greater cable from PoE network switch to ACS-SDC-E unit. Allow a few seconds for the ACS-SDC-E unit to boot up.
4. Open a web browser and navigate to **169.254.242.121** .
5. When the prompt appears for username/password, use username **cli** and password **new5cli**.
    a) The Administrative Interface (WebCLI) is used to gain access to the onboard functionality for debugging and manual configuration utilities.

Verify connection of the LAN to the ACS-SDC

1. Using CAT5 or greater cable, connect the LAN to the ACS-SDC-E unit via its LAN port.
    a) The LAN port is a 10/100 Ethernet interface with an RJ45 jack for connecting the Ethernet port on the ACS-SDC-E to a Local Area Network in order for it to gain connectivity to the Internet.
    b) Use a straight, (i.e., non-crossover) cable to connect this port to a local hub, switch or router.
2. Verify the connection of the LAN to the ACS-SDC by accessing the Administrative Interface (WebCLI) Using the instructions listed in the previous step. On the main page of the Administrative Interface, you should see a recent time/date stamp in the Last Contact with Central field.

NOTE: Firmware Upgrade: This automatic update is a one-time process that occurs only during the initial connection. When first registered and connected to the Brivo cloud service, your ACS-SDC will automatically download and install the latest firmware. This process may take several minutes, so do not disconnect or cut power to your ACS-SDC during this process. If you encounter any difficulties during this process, please contact Brivo Technical Support at 866-274-8648 or email customercare@brivo.com.

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Revision Table

Version	Date	Content
1.0	02/07/2023	Original document
1.1	02/17/2023	Updated wire requirements table
1.2	02/28/2023	Added wiring graphics
1.3	11/06/2023	Added coin cell battery replacement info
1.4	03/25/2024	Added OSDP / RS-485 Wiring Table on page 14 and updated Wire Recommendations on page 5
1.5	11/22/2024	Added ACS-SDC-E-ENC content
20260122	01/22/2026	Adopting new revision nomenclature and clarified the langauge of the first time firmware upgrade procedure

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