JOHNSON CONTROLS

S300

Series

S300-KDM

Hardware Installation Manual

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Chapter 1

HARDWARE INSTALLATION

INTRODUCTION

The S300-KDM (also called the “Keypad/Display module” in this manual) is a keypad with an LCD display that connects to the CK722 panel and functions as the user interface for the intrusion detection system.

An authorized user can utilize the Keypad/Display module to:

- Arm or disarm an area
- Bypass or activate a zone
- Silence an annunciator
- Examine status of the areas, zones, annunciators, and active alarms
- Acknowledge intrusion alarms
- Reset or test a sensor

The display part of the module provides information necessary to guide the authorized user through the above actions. The S300-KDM reports the keys entered into the keypad to the CK722 panel as the authorized user navigates through the menus associated with the above functions.

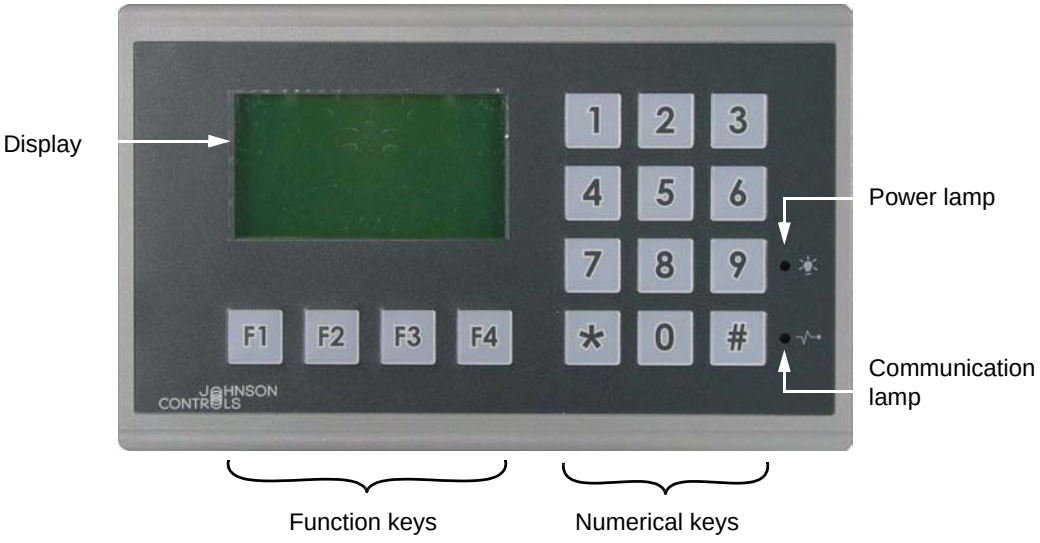


Figure 1-1: S300-KDM

APPLICATION

The Keyboard/Display modules are used as a part of the CK722 system. Communication between the CK722 and the Keyboard/Display module is accomplished via the S300 protocol over RS-485.

The S300-KDM module provides:

- A wall mounted local user interface
- A 12-key numeric, or telephone style, keypad
- Four additional function keys
- An LCD display
- An audible tone generator

INSTALLATION

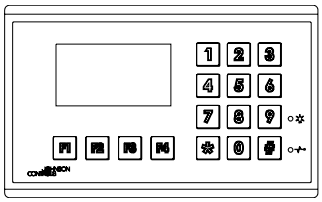
This section describes the hardware installation of the module. For operation instructions refer to the *CK722 Commissioning Guide*.

Unpacking the Equipment

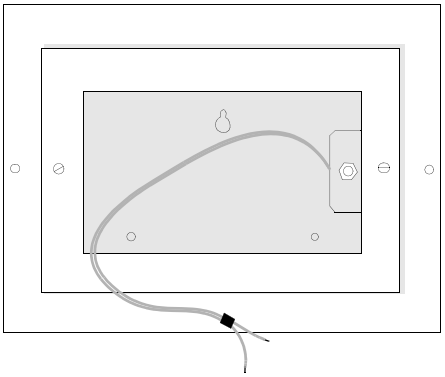
Carefully inspect the shipping containers as soon as you receive them (with the delivery agent present). Some shipping companies want to have an agent present when a damaged container is opened. If a container is damaged, open it immediately, inspect the contents, and have the agent make note on the shipping document. Check the purchase order against the packing slips to ensure the order is complete. If the contents of a container are damaged in any way, notify the carrier and your Johnson Controls representative immediately. Report any discrepancies to your Johnson Controls representative. Save the packing materials for possible return shipments.

Package Contents

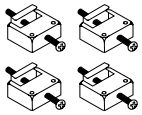
- Keypad/Display module
- Enclosure (back box, flange, and bezel) with tamper switch
- Four installation fasteners
- Power connector (wired into the DC power supply)
- This document



Keypad/Display module



Enclosure with tamper switch



Installation fasteners

Power connector

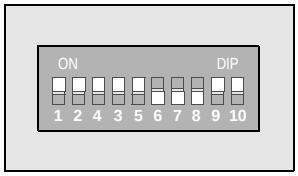
Tools Needed

You will need the following tools to mount and wire the Keypad/Display hardware:

- Hole cutter
- Small straight blade screwdriver for securing wires in the terminal blocks
- Phillips screwdriver to tighten fasteners
- Two toggle bolts (wall mount only)

DIP Switches

Before powering up the device, set up the DIP switches as specified below.



Up = On position

Down = Off position

Pin:	1	2	3	4	5	6	7	8	9	10
Setting:	On	On	On	On	On	Off	Off	Off	On	On

MOUNTING

Observe these mounting considerations:

- Do not install in areas subject to excessive dust, oily mist, conductive dust, corrosive gas, or flammable gas.
- Do not mount in areas subject to snow or vibration.
- Do not mount in areas subject to high temperature.
- Do now allow cut wires, fillings, or shavings to fall inside the Keypad/Display module when drilling holes or connecting cables.
- Communication cables must be separated from the power cables for operational circuits. Shielded cables must be used.

Loss of life, severe personal injury, or substantial property damage may result if proper precautions are not taken.

Mounting Options

The mounting box set components can be used together or separately for different mounting options:

- For flush mount, use the entire enclosure (back box with tamper switch, flange, and bezel).
- For wall mount, use the back box with tamper switch and bezel.

The back box is shipped with the tamper switch and flange already installed.

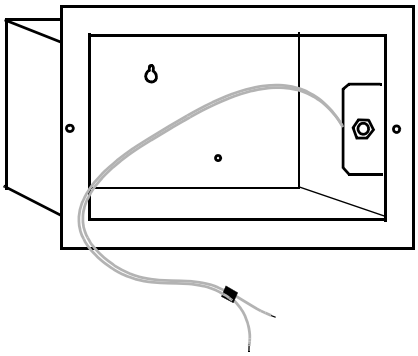
➤ **To mount the S300-KDM (flush mount):**

1. Prepare the back box by making hole appropriate for wiring.
2. Cut out the wall surface to fit in the back box. Match the cut-out dimensions shown below.

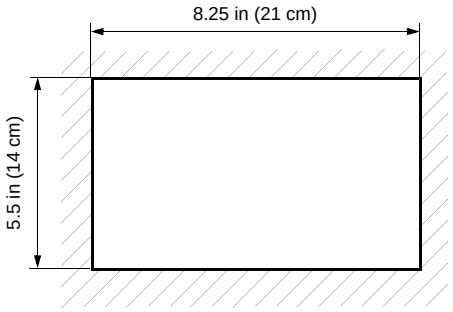
NOTE

The back box is shipped with the flange already mounted.

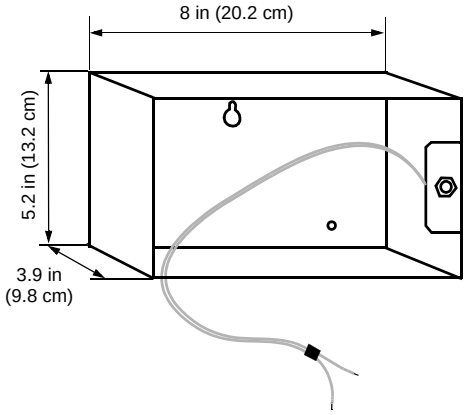
Back box with flange and tamper switch



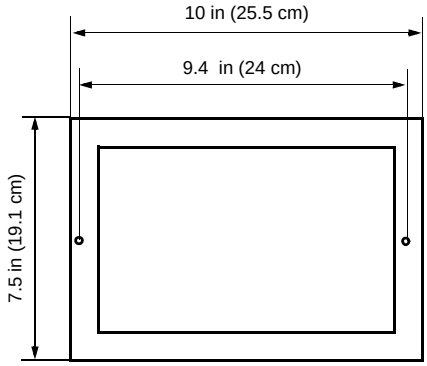
Wall cutout



Back box with tamper switch

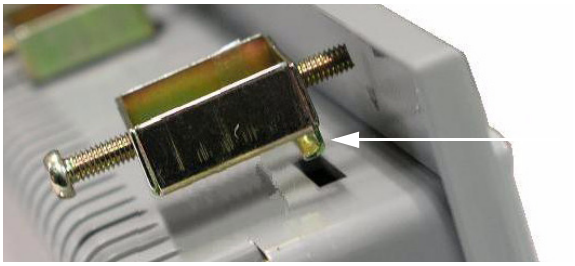


Flange



3. Mount the back box with flange into the cut-out and secure it with screws.
4. Put the Keypad/Display module through the hole in the bezel.

5. Secure the bezel. To do so, insert the tabs of the installation fasteners into the holes of the Keypad/Display module (two on the top and two on the bottom) and tighten the screws.



NOTE

The screws must be fastened securely, but not too tight. Tightening the screws too much may cause deformation of the front case.

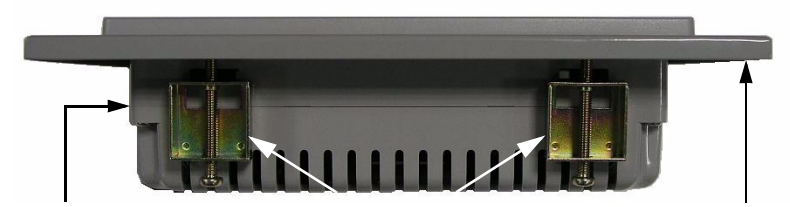
6. Wire the unit (see “Wiring” on page 8).
7. Insert the keypad/Display module with bezel into the back box and secure the bezel to the flange with screws.

➤ **To mount the S300-KDM (wall mount):**

1. Remove the flange from the back box.
2. Secure the back box to the wall surface with screws.
3. Put the Keypad/Display module through the hole in the bezel.
4. Secure the bezel. To do so, insert the fixtures of the fasteners into the holes of the Keypad/Display module (two on the top and two on the bottom) and tighten the screws.

NOTE

The screws must be fastened securely, but not too tight. Tightening the screws too much may cause deformation of the front case.



5. Wire the unit (see “Wiring” on page 8).
6. Insert the keypad/Display module with bezel into the back box and secure the bezel to the wall with screws.

WIRING

See the figure below for location of the components on the back panel of the Keypad/Display module.

Power Supply, Network, and Communication Connections

Power Supply

The Keypad/Display module must be powered from a 24VDC, 8W power supply.

To avoid an electric shock, be sure to switch off the power before connecting the communication/download cable to the Keypad/Display module.

NOTE

When the Keypad/Display module is connected, be sure the power cable is grounded.

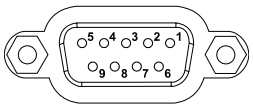
Connecting to the Network

Refer to the *CK722 Network Controller Hardware Installation Manual*.

Communication Port

COM2 is used to connect a Keypad/Display module via RS485. COM2 is a 9-pin female connector.

COM2



Pin	Function
1	RS485+
5	Signal ground
6	RS485-

Wiring the Tamper Switch

Wire the tamper switch to an input point.The S300-KDM does not have its own tamper input and it must be wired to a security input in another module.

Wiring the S300-KDM

To avoid electric shock, do not connect the DC power cable to the S300-KDM module until all wiring is complete.

➤ **To wire the S300-KDM:**

1. Unplug the power connector and unscrew the screws.
2. Strip about 10 mm of insulation. Insert the wire all the way into the power connector and then turn the screws tight.
3. Plug in the power connector.

NOTE

The power connector is already plugged in when the package is first opened.

Wiring Considerations and Guidelines

Cable Requirements

Description	Recommended Cable Type	Maximum Segment Length
RS485	22-24 AWG	4000 ft (1219 m)

Ground and Grounding Cable Shields

Make sure the power connector is grounded properly.

When the FG terminal is connected, be sure the wire is grounded. Without grounding, the keypad may be severely affected by electrical noise.

To construct the ground wiring, use 14AWG wires. Class3 ground resistance is required. The ground cable must *not* be connected to the same ground point as the power circuit.

SETUP AND ADJUSTMENTS

For instruction on S300-KDM operation, refer to the *CK722 Commissioning Guide*.

Self-Test

Once the Keypad/Display module is turned on, it will automatically execute a self-test to check its hardware. The result of a self-test is displayed on the LCD. See below for the items to check in a self-test:

```
BIOS Version V1.0
(C) 2004 HITECH CORP
System Ram   128KB
Flash Memory 4MB
Battery check.......~(or x)
Parameter check.....~(or x)
BIOS check..........~(or x)
Firmware check......~(or x)
Application check...~(or x)
RTC check...........~(or x)
DIP SW 8~1: 11111000 (or other combinations)
```

If any of the above items does not pass a self-test, the following message will be displayed on the screen for about two seconds:

```
Error code: 0x18
Wait for a minute
to continue
```

Setting the Hardware Module Number

In order for the Keypad/Display module to become operational on an S300 bus, you need to program its Hardware Module Number.

NOTE

Each Keypad/Display module and RDR2S module connected to the same S300 bus must have a unique Hardware Module Number.

The steps depend on whether the module is being programmed for the first time (brand new module) or if you need to change a previously programmed number. Both procedures are described in this section.

➤ **To set the Hardware Module Number (new device):**

1. Power up the device.
2. Wait for the following text to appear:

```
Set Hardware Module
Number (0..63)
Current Number: None
```

3. Enter the new Hardware Module Number (one or two digits, the maximum value is 63) and press the # key.

   Notes:

   - Only valid numbers will take effect. If you enter an invalid Hardware Module Number (value greater than 63), no warnings are generated, but the number will not take effect.
   - To change a mistakenly entered wrong value you must first enter the ***98#** sequence, then the new value, then the **#** key.
   - To exit the settings screen press the ****** key sequence at any time.

➤ **To change the Hardware Module Number:**

1. Take the module offline and wait 20 seconds for the offline timeout period to expire.
2. Press the following key sequence: ***98#**. The following screen appears (the "Current Number" may be different):

```
Set Hardware Module
Number (0..63)
Current Number: 4
```

3. Enter the new Hardware Module Number (one or two digits, the maximum value is 63) and press the # key.

   Notes:

   - Only valid numbers will take effect. If you enter an invalid Hardware Module Number (value greater than 63), no warnings are generated, but the number will not take effect.
   - To change a mistakenly entered wrong value you must first enter the ***98#** sequence, then the new value, then the **#** key.
   - To exit the settings screen press the ****** key sequence at any time.

LCD Contrast Adjustment

To adjust the LCD contrast, use a small screw driver to turn the contrast adjustment button on the back of the Keypad/Display module:

- Clockwise = contrast down
- Counter-clockwise = contrast up

TECHNICAL SPECIFICATIONS

Item	Specification
Power requirements	24VDC±15% (or 20V-28V); under 8W
Dimensions*	6.81 x4.1x2.0 in (173x105.5x51.79 mm)
Weight*	1.43 lb (0.65 Kg)
Operating temperature	32 to 122°F (0 to 50°C)
Storage temperature	-4 to 158°F (-20 to 70°C)
Ambient humidity	20 - 90% RH (non-condensing)
Vibration endurance	0.2 in (0.5mm) displacement, 10-55Hz, 2 hours per X, Y, and Z axis directions
Shock endurance	10G, 11mx three times in each direction of X, Y, and Z axes
Cooling	Natural cooling
Display	High resolution (160x80 pixels); can display 20x10 characters of 8x8 size Type: Mono STN LCD Color: Black/White, 16 gray levels Size: 3 in (76 mm) diagonal
Back light	Yellow-Green LED; Life time is approx. 75,000 hours
Keypad	16 mechanical switches. Life of each switch is over 500,000 activations
RTC	Yes
Communication ports	RS485
Front panel seal	IP65 / NEMA 4
Shock endurance	10G, 11mx three times in each direction of X, Y, and Z axes
RF emissions	CISPR 22, Class A
Electrostatic discharge	IEC61000-6-2
RF susceptibility	IEC61000-6-4
High frequency transients	IEC61000-6-4
Cabling	See page 9 for details
Power supply	24VDC / 8 watt
Replaceable/spare parts	There are no replaceable parts in the S300-KDM

* S300-KDM only

MAINTENANCE

Impaired Performance Conditions

A list of conditions that may cause impaired performance is provided below with reference pages.

Condition	Information Location
Unit environment not as specified	See page 12
Unit power and grounding not as specified	See page 8 and page 9
Cable length or type not as specified	See page 9
DIP switches set incorrectly	See page 3

Field Servicing

There are no replaceable parts in the S300-KDM.

Troubleshoot the S300-KDM by substituting the suspected defective module with a new one.