Johnson Controls

Applications

The Touch Advanced Display (TAD) is a comprehensive series of freely programmable operator interfaces featuring both IP and MSTP BACnet® communication and graphic displays with a touch-screen interface. TAD Displays feature thin-film-transistor widescreen (16:9) displays of different sizes with a fully dimmable LED backlight and resistive touch interface. The integrated HTML 5.0 web server grants remote access whenever the units are connected to an accessible IP network.

Figure 1: Touch Advanced Display

Installation

Observe these guidelines when installing the TAD:

- Transport the display in the original container to minimize vibration and shock damage to the unit.
- Verify that all parts were shipped with the display.
- Do not drop the display or subject it to physical shock.

Parts included

- One Touchscreen Advanced Display
- Fixing bracket screws
- Removable DC power terminal connector
- One installation instructions sheet

Materials and special tools needed

- Oscillating multi-tool or similar cutting tool for cutting a hole into the panel to hold the display, if no hole is provided
- DB-9 Serial Port Connector. See Accessories.
- 24 VDC external power supply. See Accessories.
- Small Phillips-head screwdriver

Mounting

Mounting considerations

The design of the TAD series allows for multiple mounting options including panel front and flush mounting on a wall through utilization of the BOX0x-01 accessories. To ensure the front panel protection classifications as marked on the product nameplate, you must install the TAD on a flat surface of a Type 2, 4X enclosure.

If you wish to disregard the aforementioned front panel protection classification, complete the steps found in Mounting the TAD on a drywall or Mounting the TAD on a masonry wall .

> ⚠️ For use in Pollution Degree 2 Environment, Maximum Surrounding Air Temperature 50°C
> Für den Einsatz in Verschmutzungsgrad 2, Maximale Umgebungslufttemperatur 50°C
> Pour une utilisation en environnement degré de pollution 2, au maximum une température ambiante de 50°C
> Para su uso en la contaminación del medio ambiente grado 2, la máxima temperatura del aire circundante 50°C
> Per l'impiego in ambiente grado di inquinamento 2, massima temperatura dell'aria circostante 50°C

> ⚠️ CAUTION: FOR USE IN A CONTROLLED ENVIRONMENT, REFER TO MANUAL FOR ENVIRONMENTAL CONDITIONS.
> ATTENTION : POUR UTILISATION EN ATMOSPHÈRE CONTROLÉE, CONSULTER LA NOTICE TECHNIQUE.

ⓘ **Note:** The equipment is not intended for continuous exposure to direct sunlight as it accelerates the aging process of the front panel film.

ⓘ **Note:** The equipment is not intended for installation in contact with corrosive chemical compounds. Check the resistance of the front panel film to a specific compound before installation.

ⓘ **Note:** Do not use tools of any kind to operate the touch screen of the panel.
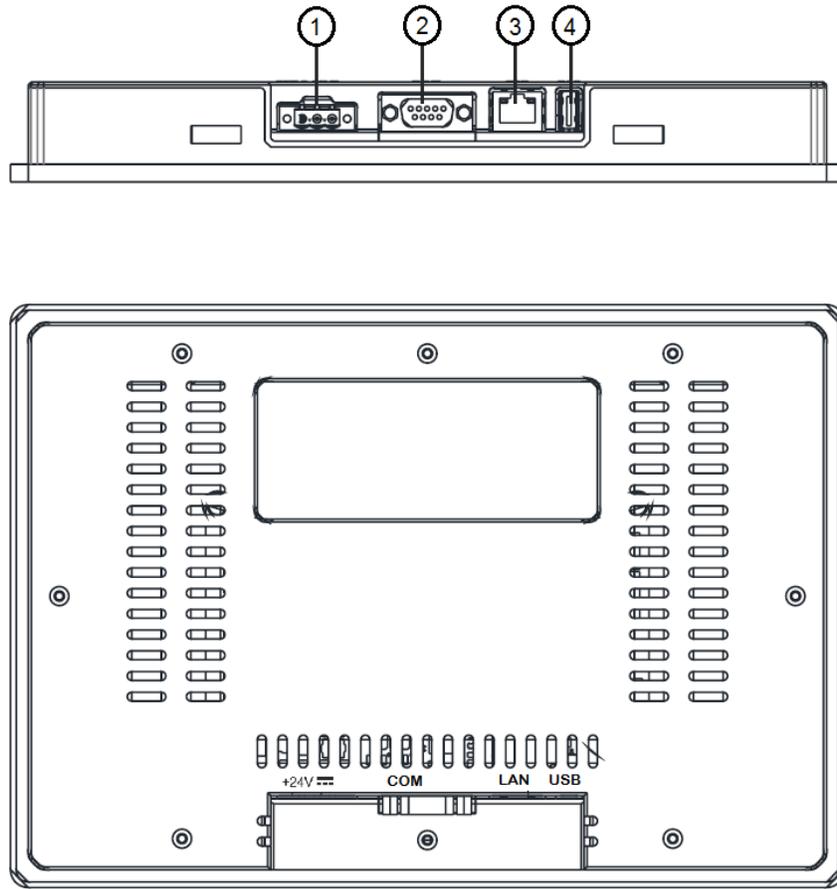
Physical features

Figure 2: TAD physical features

Table 1: Physical features callout

Callout	Description
1	Power supply terminal block (18-32Vdc)
2	Serial port (5V 100mA max.)
3	Ethernet port
4	USB port (version 2.0, 5V 500mA max)

Mounting dimensions

Refer to the following illustrations for the mounting dimensions and physical features of the TAD.
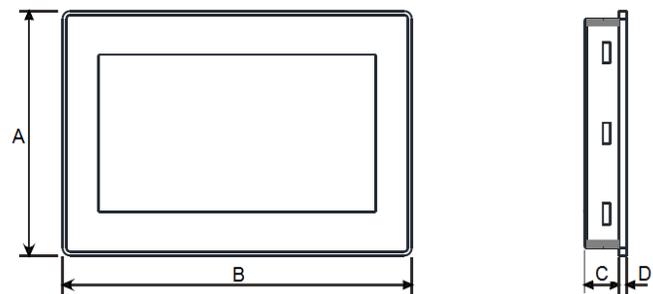
Figure 3: TAD overall dimensions

Table 2: TAD overall dimensions

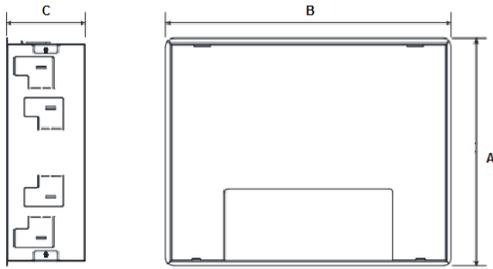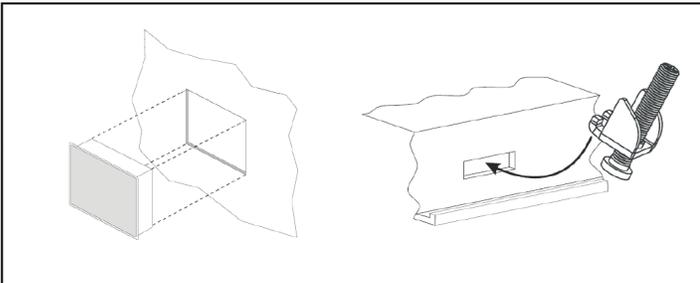| Model	A	B	C	D
TAD0471-0	107mm (4.21 in.)	147 mm (5.78 in.)	29 mm (1.14 in.)	5 mm (0.19 in.)
TAD0701-0	147 mm (5.79 in.)	187 mm (7.36 in.)	29 mm (1.14 in.)	5 mm (0.19 in.)
TAD1001-0	197 mm (7.75 in.)	282 mm (11.10 in.)	29 mm (1.14 in.)	6 mm (0.23 in.)

Figure 4: BOXxx-01 dimensions

Table 3: BOXxx-01 dimensions

Model	A	B	C
BOX04-01	102 mm (4.03 in.)	142 mm (5.61 in.)	50 mm (1.96 in.)
BOX07-01	142 mm (5.61 in.)	182 mm (7.18 in.)	50 mm (1.96 in.)
BOX10-01	192 mm (7.57 in.)	277 mm (10.92 in.)	50 mm (1.96 in.)

Mounting the TAD to a controls enclosure

Figure 5: Mounting the TAD to a controls enclosure

Tighten the fixing brackets screws at 75Ncm for the appropriate cut-out:

Table 4: Cut out dimensions

Model	Cut out dimensions
TAD0471-0:	136 mm x 96 mm (5.35 in. x 3.78 in.)
TAD0701-0:	176 mm x 136 mm (6.90 in. x 5.35 in.)
TAD1001-0:	271 mm x186 mm (10.66 in. x 7.32 in.)

Mounting the TAD to a counter display

You can display the TAD using the DEMO-STAND07 counter display.
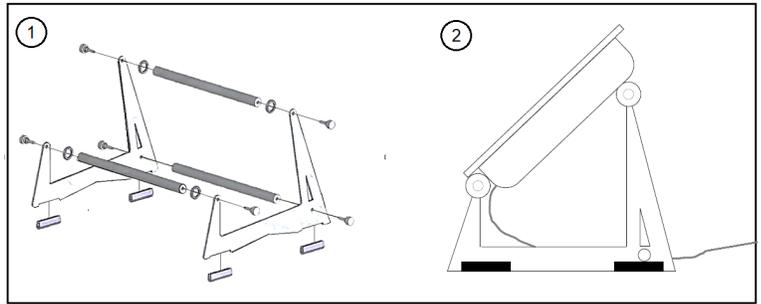
Figure 6: Mounting on the counter display

Table 5: TAD counter display

Number	Description
1	Assembly instructions
2	Side-view of the TAD correctly positioned on the counter display

Mounting the TAD on a drywall

The display can be wall-mounted using the BOXxx-01 wall box directly into drywall. Complete the following steps:

1. Use the dimensions found in Table 6 and illustrated in panel 1 of Figure 7 to measure what size hole that you need to accurately draw.
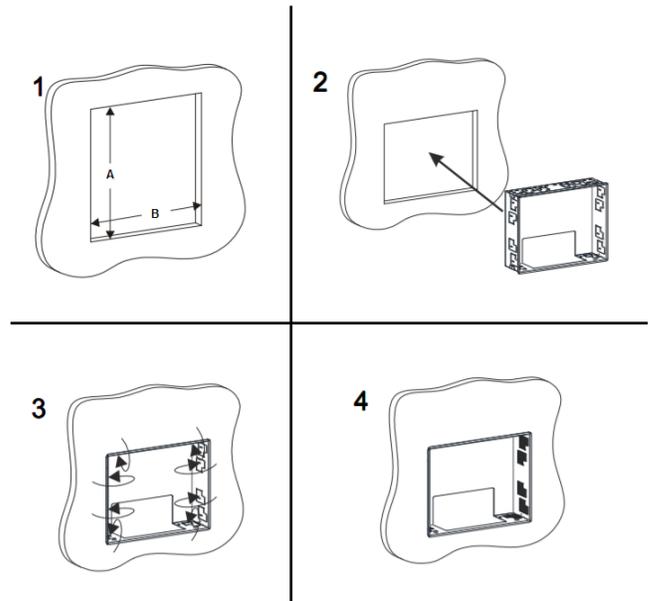
Figure 7: Mounting a TAD on a drywall

Table 6: Cut out dimensions

Model	A	B
BOX04-01	104 mm (4.09 in.)	144 mm (5.66 in.)
BOX07-01	144 mm (5.66 in.)	184 mm (7.24 in.)
BOX10-01	194 mm (7.63 in.)	279 mm (10.98 in.)

2. Cut a hole in the drywall using an oscillating multi-tool or similar cutting tool.

3. Insert the box in the cutout and then route the wiring cables through the backplate.
4. Push out the tab fasteners on the top, on the sides and on the base of the box. Ensure that the box is secure within the cutout. See panel 3 of Figure 7.
5. Attach the wiring cables. See Wiring for further information.
6. Insert the TAD into the box by pressing gently on each side of the casing until the display clicks into place.

Mounting the TAD on a masonry wall

The display can be wall-mounted using the BOXxx-01 wall box directly into a masonry wall. Complete the following steps:

1. Use the dimensions found in Table 7 and illustrated in panel 1 of Figure 8 to measure what size hole you need and draw accurately.
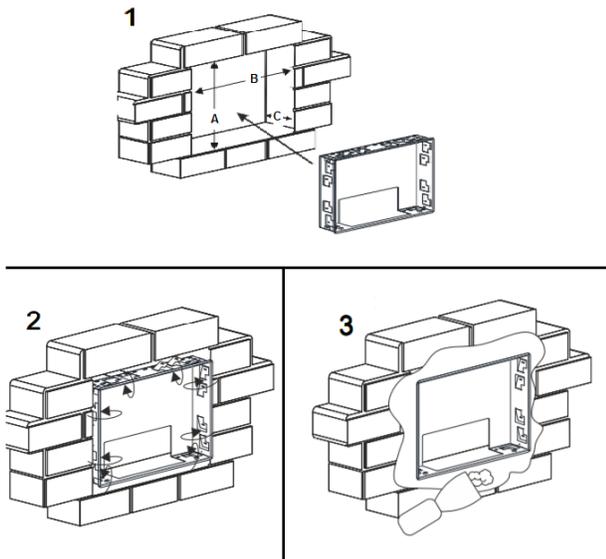
Figure 8: Mounting a TAD on a masonry wall

Table 7: Cut out dimensions

Model	A	B	C
BOX04-01	118 mm (4.64 in.)	157 mm (6.18 in.)	60 mm (2.36 in.)
BOX07-01	157 mm (6.18 in.)	198 mm (7.79 in.)	60 mm (2.36 in.)
BOX10-01	207 mm (8.14 in.)	293 mm (11.53 in.)	60 mm (2.36 in.)

2. If no hole is provided, cut a hole in the masonry using a concrete saw or similar cutting tool.
3. Insert the box in the cutout and then route the wiring cables through the backplate.
4. Push out the tab fasteners on the top, on the sides and on the base of the box. Ensure that the box is secure within the cutout. See panel 2 of Figure 8.

5. Secure the box using cement filler or a similar bonding agent.
6. Attach the wiring cables. See Wiring for further information.
7. Insert the TAD into the box by pressing gently on each side of the casing until the display clicks into place.

Wiring

Observe the following guidelines when wiring a TAD:

⚠️ **CAUTION**

Risk of Electric Shock.

Disconnect the power supply before making electrical connections to avoid electric shock.

⚠️ **ATTENTION**

Risque de décharge électrique.

Débrancher l'alimentation avant de réaliser tout raccordement électrique afin d'éviter tout risque de décharge électrique.

➤ **Important:** Do not connect supply power to the TAD before finishing wiring and checking all wiring connections. Short circuits or improperly connected wires can result in damage to the controller and void any warranty.

➤ **Important:** Do not exceed the TAD electrical ratings. Exceeding controller electrical ratings can result in permanent damage to the controller and void any warranty. See Technical specifications.

➤ **Important:** Use copper conductors only. Make all wiring in accordance with local, national, and regional regulations.

➤ **Important:** Electrostatic discharge can damage controller components. Use proper electrostatic discharge precautions during installation, setup, and servicing to avoid damaging the TAD.

Power the TAD units with 18 to 32 VDC supply voltage. See Accessories for the recommended power supply. The unit must always be grounded to earth. Use terminal 3 on the power supply terminal block for the earth connection. See Figure 9 for details on the correct wiring configuration.

For details on how to connect the TAD to a network of FX-PCs devices, refer to the *FX MS/TP Communications Bus Technical Bulletin (LIT-12011670)*. For details on connecting the TAD to a network of Metasys devices, refer to the *MS/TP Communications Bus Technical Bulletin (LIT-12011034).*
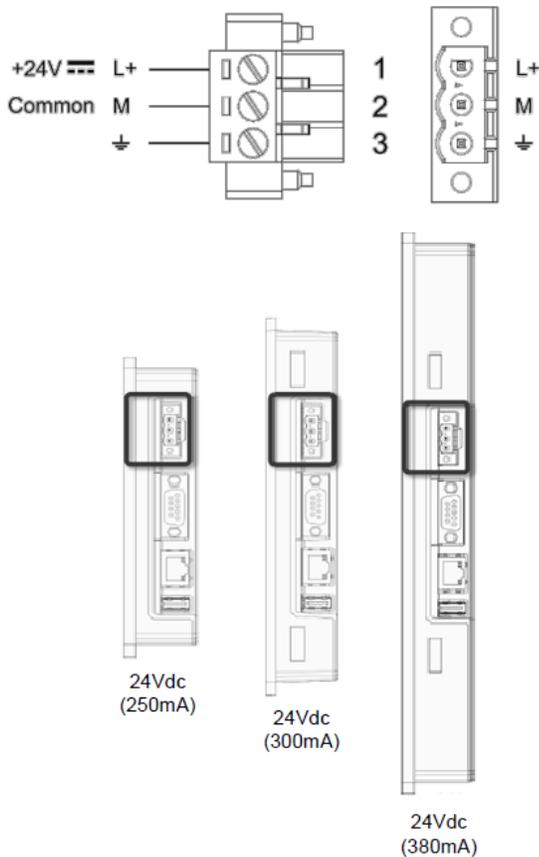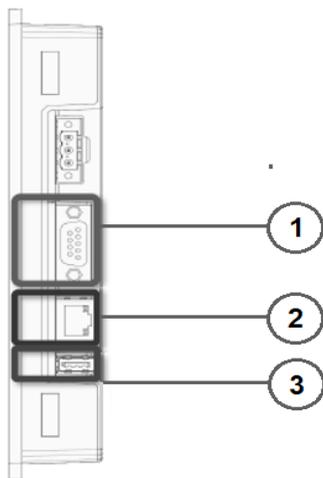
Figure 9: Wiring configuration

24Vdc
(250mA)

24Vdc
(300mA)

24Vdc
(380mA)

Figure 10: Communications

Table 8: Communications

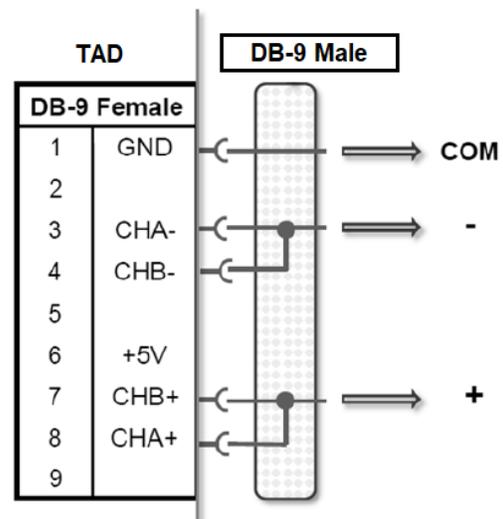| Number	Description
1	DB-9 • RS-485
2	Ethernet Port • Upload and download • Remote connection • IP Protocols
3	USB • Download • Trend buffer retrieve

Serial port

The TAD serial port is used to communicate with other field devices. The serial port standard is software programmable. You must select RS485 for BACnet MS/TP.

Serial ports pinout: RS485

ⓘ **Note:** Pins 3 & 4 are not internally interconnected within the TAD. Interconnect them together on the DB-9 Male and then connect to the FC-Bus terminal [-]. The same is valid for pins 7 & 8 connected to the FC-Bus terminal [+]. Pin 1 is connected to the FC-Bus terminal COM.

Figure 11: Serial Ports Pinout: RS485

Once the DB-9 male connector is correctly prepared, you can connect outputs to the FC bus connector. It is required to wire the COM along with the + and - connections.
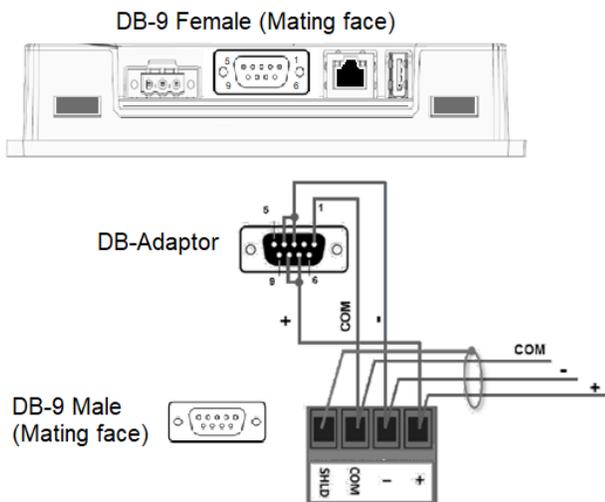
Figure 12: DB-9 connector

Table 11: Product ordering codes

Product code	Description
TAD-DB9-0	DB-9 Serial Port Connector, required for BACnet MS/TP
TTT0103	Touchscreen Tailoring Tool, single license key for installation on 3 computers
TTT0110	Touchscreen Tailoring Tool, single license key for installation on 10 computers
TTT0130	Touchscreen Tailoring Tool, single license key for installation on 30 computers
ACC-PS-24VDC	DC Power supply; Input: 100-240VAC, Output: 24VDC,2.5A; DIN rail mounting

Table 9: Serial port: RS485

Pin	Description
1	COM
3-4	-
7-8	+

The TAD uses DHCP by default. If a static IP is required, it must be configured before connecting to the building network.

Setup and Adjustments

Ordering information

Table 10: Product ordering codes

Product code	Description
TAD0471-0	4.3 in. (109 mm) Touchscreen Advanced Display
TAD0701-0	7.0 in. (178 mm) Touchscreen Advanced Display
TAD1001-0	10.0 in. (254 mm) Touchscreen Advanced Display

Accessories

Table 11: Product ordering codes

Product code	Description
BOX04-01	Wall mount box for TAD04
BOX07-01	Wall mount box for TAD07
BOX10-01	Wall mount box for TAD10
DEMO-STAND07	Counter display structure for TAD07

Technical specifications

Table 12: Technical specifications

Product code number	**TAD0471-0:** 4.3 in. (109 mm) freely programmable Touchscreen Advanced Display
	TAD0701-0: 7.0 in. (178 mm) freely programmable Touchscreen Advanced Display
	TAD1001-0: 10.0 in. (254 mm) freely programmable Touchscreen Advanced Display
Display	**TAD0471-0:** 4.3 in. (109 mm) widescreen TFT 64k colors, 480 x 272 and LED backlight
	TAD1001-0: 7.0 in. (178 mm) widescreen TFT 64k colors, 1024 x 600 and LED backlight
	TAD0701-0: 10.0 in. (254 mm) widescreen TFT 64k colors, 800 x 480 and LED backlight
Brightness	200 cd/m2
Touch-screen	Resistive
Supply voltage	18-32 VDC
Real-time clock	Yes
Ethernet Port	1 – Port 0 10/100
Serial Port	RS-232 / RS-422 / RS-485 software configurable
USB Port	1 – Host v. 2.0, max. 500 mA
Power consumption	**TAD0471-0:** 250 mA max @ 24 VDC
	TAD0701-0: 300 mA max @ 24 VDC
	TAD1001-0: 380 mA max @ 24 VDC
Ambient conditions	**Operating:** 32°F to 122°F (-0°C to +50°C), 5 to 85% RH (noncondensing)
	Storage: -4°F to 158°F (-20°C to +70°C), 5 to 85% RH (noncondensing)
Dimensions (H x W x D)	**TAD0471-0:** 4.21 in x 5.78 in. x 0.945 in. (107 mm x 147 mm x 24 mm)
	TAD0701-0: 5.79 in. x 7.36 in. x 0.945 in. (147 mm x 187 mm x 24 mm)
	TAD1001-0: 7.75 in. x 11.10 in. x 0.984 in. (197 mm x 282 mm x 25 mm)
Weight	**TAD0471-0:** 0.88 lb. (0.4 kg)
	TAD0701-0: 1.32 lb. (0.6 kg)
	TAD1001-0: 2.2 lb. (1.0 kg)
Memory	**TAD0471-0:** RAM 256MB Flash, 2GB
	TAD0701-0: RAM 256MB Flash, 2GB
	TAD1001-0: RAM 512MB Flash, 4GB
Housing	Protection: IP66 front, IP20 back
Compliance CE	**United States:** UL Listed, File E515649, CCN NRAQ, UL 508, Programmable controllers; FCC test report available
	Canada: UL Listed, File E515649, CCN NRAQ7, CAN/CSA C22.2 No. 142, Programmable controllers certified for Canada; Industry Canada Compliant.
	Europe: CE Mark – Johnson Controls, Inc. declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive.
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/ buildingswarranty.

Contact information

Contact your local branch office: www.johnsoncontrols.com/locations

Contact Johnson Controls: www.johnsoncontrols.com/ contact-us

Single point of contact

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