# EA102A-304

Security Systems

EN | Installation Instructions
Receiver

BOSCH

# 1.0 Specifications

**Table 1: Specifications**

| | |
|---|---|
| **Enclosure** | Available in indoor and weatherproof outdoor enclosure |
| **Temperature Range** | -40°C to +65°C (-40°F to +149°F) |
| **Power** | 12 VDC, 25 mA typical, 55 mA with horn sounding |
| **RF Input Frequency** | 304.000 MHz |
| **Signal Strength** | Measured in 255 steps |
| **Antenna Type** | Diversity antennas |
| **Compatibility** | SE2x-304 Series and SE4x-304 Series Transmitters; EA500B Transponder with a ROM version 4.00 or greater |

**Note:**

*The EA102A-304 is compatible only with other "-304" equipment (such as the SE2x-304 and SE4x-304).* ***Do not*** *install this unit in conjunction with an EA500B Transponder with a ROM version earlier than 4.00.*

# 2.0 Mounting

Choose a mounting location based on the previous site survey. Mount the receiver as close as possible to the location found with the test receiver. Use the following sections as a guideline for receiver mounting and spacing.

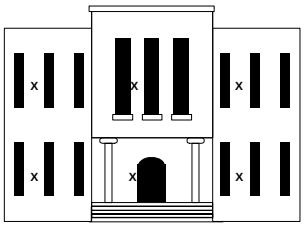
## 2.1 Indoor Receiver Installation

**Receiver Spacing:** Receiver spacing should be no more than 24.4 m (80 ft.) between receivers for standard construction. Range depends on the construction of the building. For example, a building with hollow drywall walls may support 24.4 m (80 ft.) spacing, but a building with steel reinforced concrete may require reduced spacing. It is very important to maintain a consistent spacing as this ensures optimum signal locating. The better the receivers can detect a transmitted signal, the more accurate the locating.

**Mounting Height:** Mound receivers 1.5 m to 1.8 m (5 ft. to 6 ft.) from the floor. Maintain a consistent mounting height to ensure optimum signal locating. Do not place receivers close to the ceiling. This places them closer to the floor above reducing the floor-to-floor location accuracy. It is also helpful to place the receivers somewhat higher on the top floor to be covered and somewhat lower on the bottom floor to be covered.

**Multi-Floor Installations:** Mount receivers over one another in multi-floor installations. This helps maintain proper floor-to-floor reception (see *Figure 1*).

**Figure 1: Receiver Locations**



*x = Receiver location inside building*

Select a mounting location that:

- provides a clear line-of-sight of the protected area, if possible.
- is at least 31 cm (1 ft.) away from metal objects such as HVAC ducts.
- is on an inside wall, if possible.
- is 1.5 m to 1.8 m (5 ft. to 6 ft.) from the floor.
- is not at a barrier where it is important to resolve which side an alarm location is on.
- is not damaged by tampering or opening doors.

## 2.2 Outdoor Receiver Installation

**Receiver Spacing:** Mount receivers every 91.5 m (300 ft.). It is very important to maintain spacing as consistent as possible to ensure optimum signal locating. The more the receivers can detect a transmitted signal, the more accurate the locating. Make sure each receiver has a clear line-of-sight of the intended protection area.

**Mounting Height:** Mount receivers 3 m (10 ft.) above grade. Maintain a mounting height that is as consistent as possible to ensure optimum signal locating.

**Overhangs/Eaves:** Receiver locations should be below building overhangs and eaves. Most transmissions occur 1 m (a few feet) above grade. Therefore, mounting above overhangs and eaves can result in inaccurate signal locating. Be especially careful around metal roofs as these can block the signal.

Select a mounting location that:

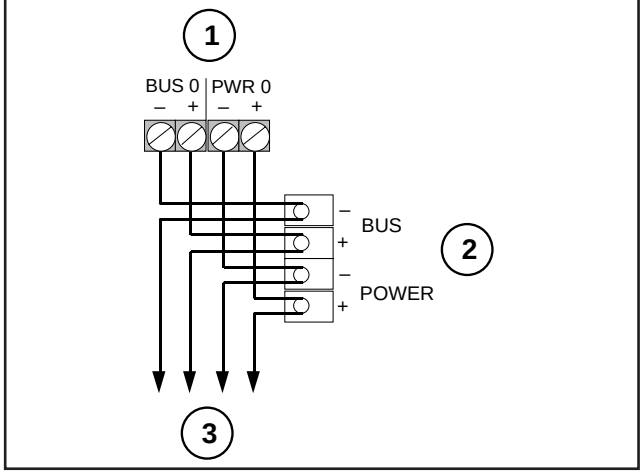
- provides a clear line-of-sight of the protected area.
- is away from metallic objects such as chain-link fences and electrical transformers. If coverage is required near such items, perform testing near them to determine the potential need for additional receivers.
- is 3 m (10 ft.) above grade.
- is not at a barrier where it is important to resolve which side an alarm location is on.
- is easy to service.
- is not damaged by tampering.

## 3.0 Wiring

Apply power only after all connections are made and inspected.

Connect wiring as shown in *Figure 2*.

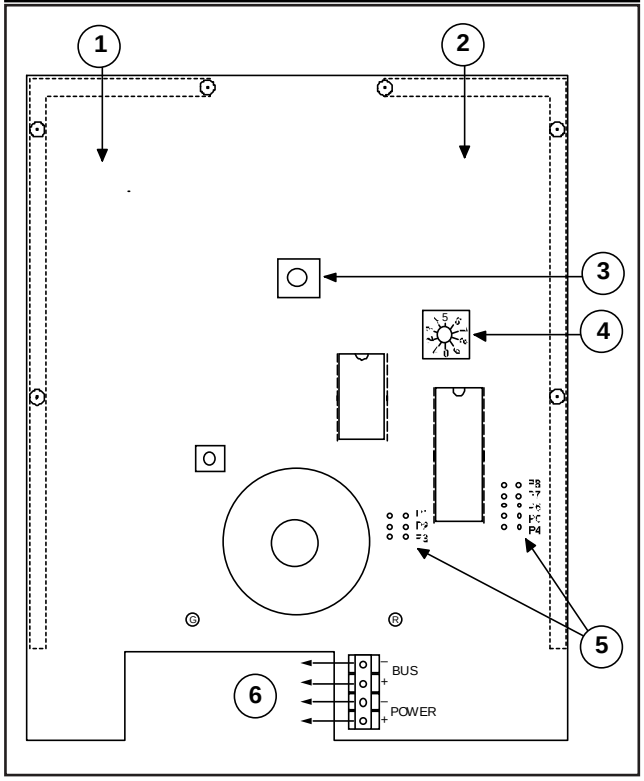
**Figure 2: Multiplex Loop Wiring**




*1 - Transponder*
*2 - Typical receiver*
*3 - To next device*

## 3.1 EA102A-304 Layout

**Figure 3: EA120A-304 Layout**



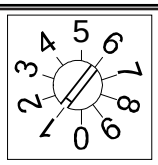

*1 - Left antenna*
*2 - Right antenna*
*3 - Tamper*
*4 - Address*
*5 - Jumpers*
*6 - To transponder signal bus*

# 4.0 Switches and Jumpers

## 4.1 Loop Address

The Rotary Switch is used to select the loop address, the address that is reported to the transponder the receiver connects to. Each device on a loop should have its own address. Only addresses 0 through 7 are valid. Do not use addresses 8 and 9.

**Figure 4: Address**




## 4.2 Jumpers

There are two groups of jumpers on the EA102A-304 Receiver. The first group contains jumpers P1 through P3. The second contains jumpers P4 through P8. The function of each jumper is indicated in *Table 2*.

**Table 2: Jumpers**

| Jumper | Operation with Jumper in Place |
|---|---|
| P1* | Sounder is enabled. |
| P2* | Green LED is enabled. |
| P3* | Red LED is enabled. |
| P4** | Test Mode is enabled. |
| P5** | Receiver Spacing Mode is enabled. |
| P6** | Left antenna is disabled. |
| P7** | Right antenna is disabled. |
| P8 | Do not place a jumper across these pins. |

* Remove jumpers P1, P2, and P3 when installed in an outdoor enclosure.

** Remove jumpers P4, P5, P6, and P7 for normal operation.

## 4.3 Test Mode

The module goes into Test Mode when jumper P4 is in place (jumper P5 removed). In this mode, all test and alarm receptions are sounded. Test only one receiver at a time.

**Note:**

*The sounder and LEDs (jumpers P1, P2, and P3) must also be enabled to operate the Test Mode.*

To test each receiver:

1. Enable the Test Mode by placing the P4 jumper across both pins (jumper P5 removed).
   - The red LED turns on and stays on during the test.
   - The green LED flickers if the receiver is connected to a working transponder.
   - No data is transmitted to the central station.
   - The central station receives a “not responding” failure.
2. Activate the transmitter from at least five different locations near the receiver.
   - The LEDs respond to a received transmission.
   - If the receiver detected all the packets from the transmission, the sounder beeps three times.
   - If the receiver detected the transmission, but some of the packets were missing, it beeps once. This could indicate that the signal is not sufficient from this location.

## 4.4 Testing Receiver Spacing

Receiver Spacing Mode is enabled with Jumper P5 in place (Jumper P4 removed). This mode is exactly the same as the Test Mode described in *Section 4.3*, except that only transmissions with an adequate receive margin are sounded. This indicates the maximum acceptable spacing of receivers.

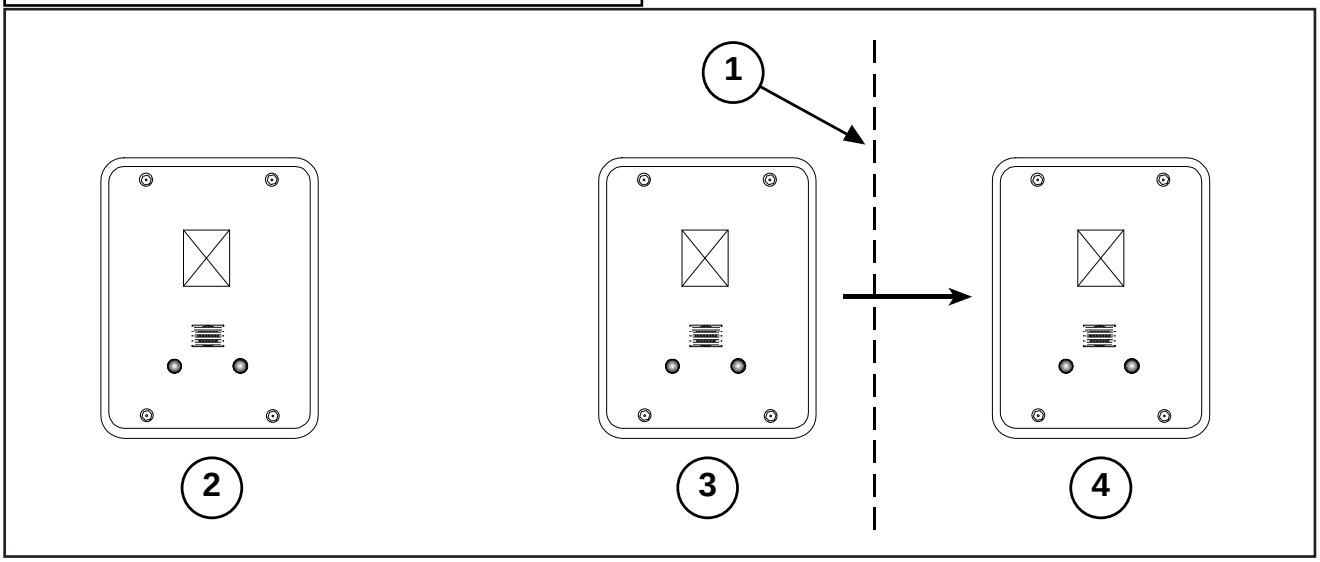
To test the spacing of receivers:

1. Mount the first receiver.
2. Take the second receiver and a transmitter a distance away from the first receiver.
3. Activate the transmitter.
4. If Receiver 1 sounds the test beeps, Receiver 2 is within range. Repeat this test until Receiver 1 no longer sounds the test beeps. Move back to the last location where Receiver 1 received the test beeps. This location marks the maximum spacing between receivers. Mount Receiver 2 at this location or closer to Receiver 1.

**Note:**

*Do not use the Test Mode (jumper P4) to determine receiver spacing.*

**Figure 5: Receiver Spacing**




*1 - Receiver 1 stops sounding the test beeps when Receiver 2 is moved beyond this point.*

*2 - Receiver 1*

*3 - Receiver 2 at maximum range*

*4 - Receiver 2 beyond maximum range*

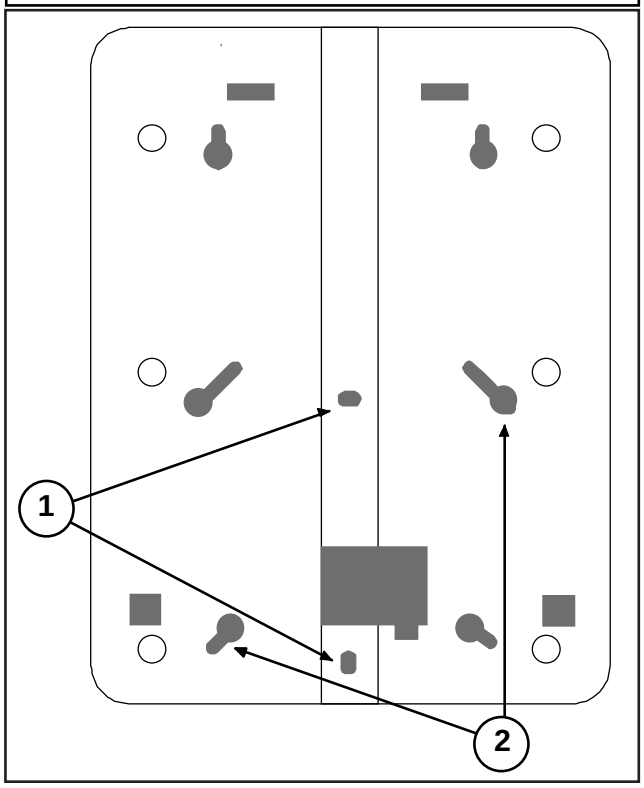
## 5.0 Pre-Wired Installations

When mounting the enclosure to a pre-wired electrical box, make sure the electrical box has a 15.2 cm (6 in.) overhead clearance. The enclosure should be mounted as shown in *Figure 6*.

**Note:**

*The enclosure does not currently support octagonal electrical boxes.*

**Figure 6: Back of AE100 Indoor Enclosure**



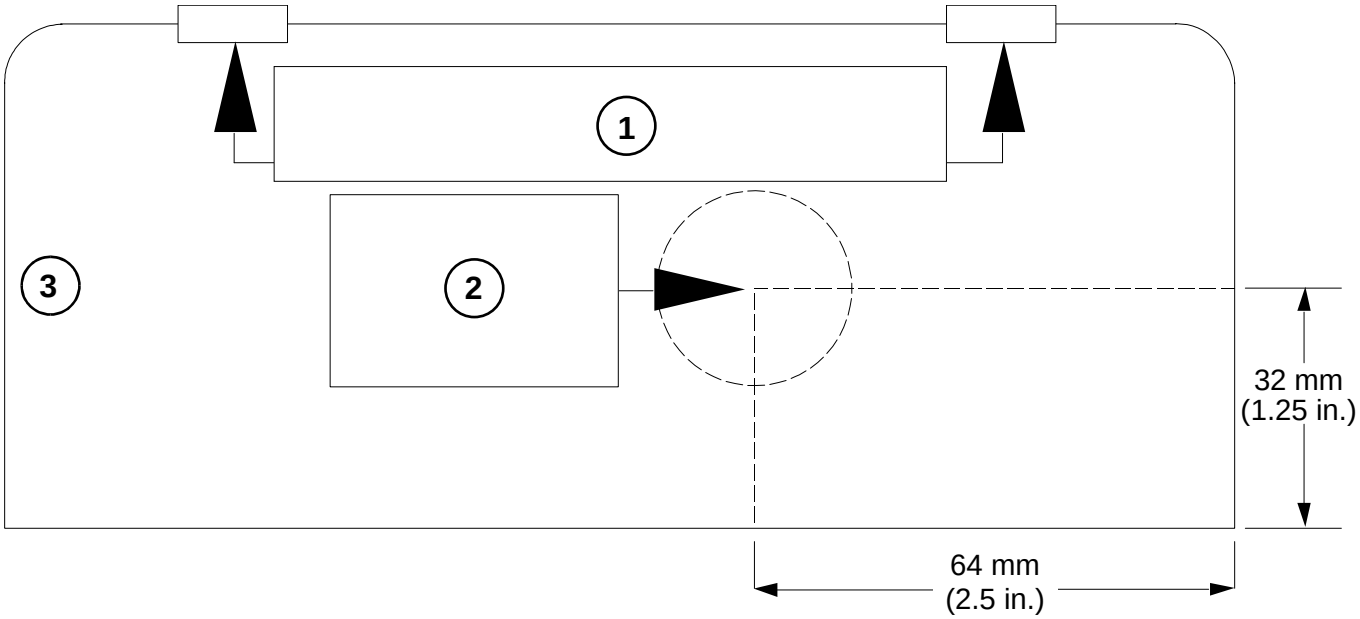

*1 - Use with single-gang electrical boxes.*

*2 - Use with 8.9 cm (3½ in.) square electrical boxes.*

## 6.0 Drilling Templates

Use the following templates (*Figure 7* and *Figure 8*) for mounting the AE101 Outdoor Enclosure. Remember to remove jumpers P1, P2, and P3 prior to installing the receiver.

**Figure 7: Drilling Template for AE101 Outdoor Enclosure Bottom Entry**

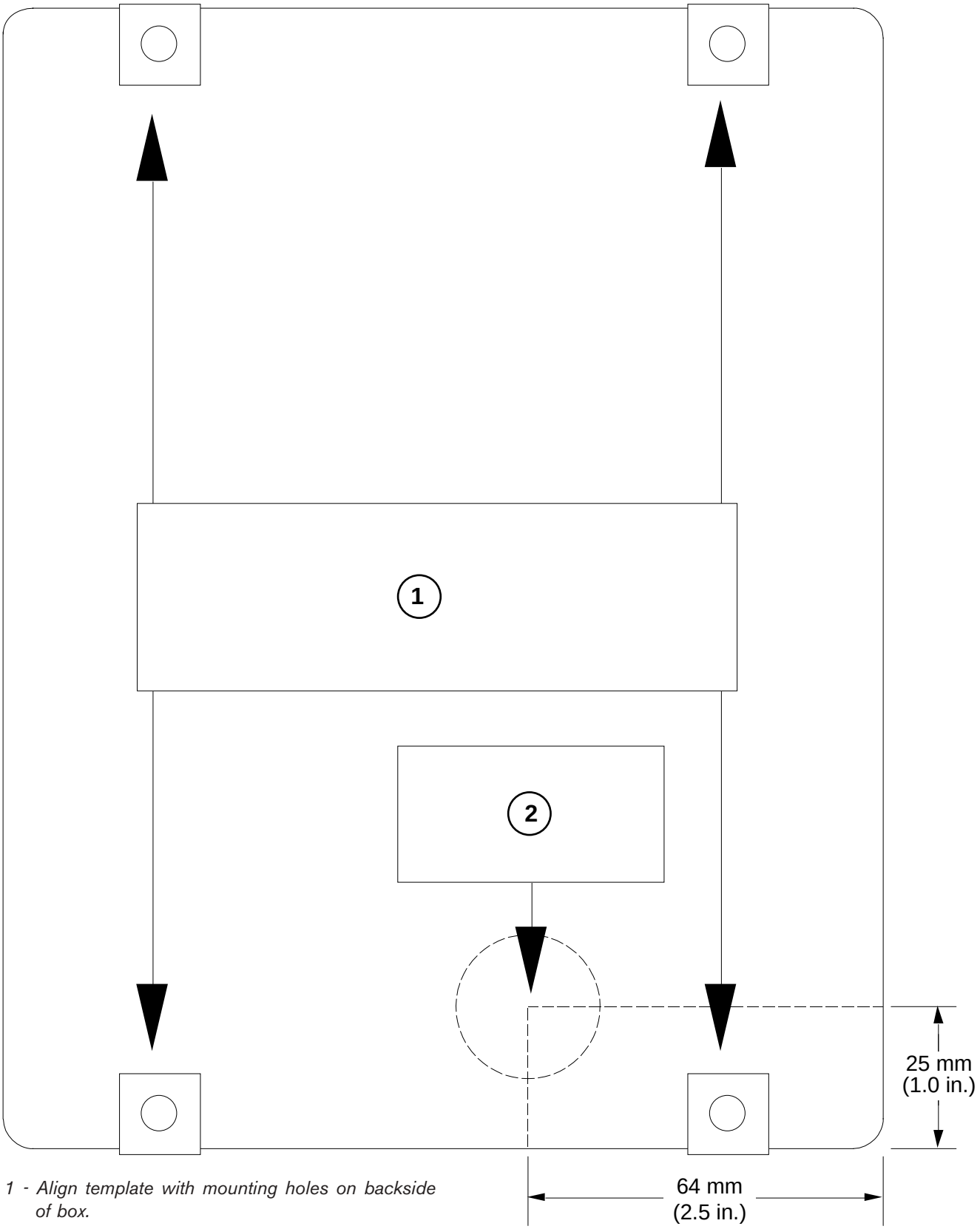



*1 - Align template with mounting hole squares on box.*

*2 - Drill here. 25 mm (1 in.) diameter maximum; 19 mm (¾ in.) conduit.*

*3 - Bottom Entry*

**Figure 8: Drilling Template for AE101 Outdoor Enclosure Rear Entry**




*1 - Align template with mounting holes on backside of box.*

*2 - Drill here. 25 mm (1 in.) diameter maximum; 19 mm (¾ in.) conduit.*

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