DDI602U-F1 Outdoor Dual PIR Detector Installation Sheet

EN

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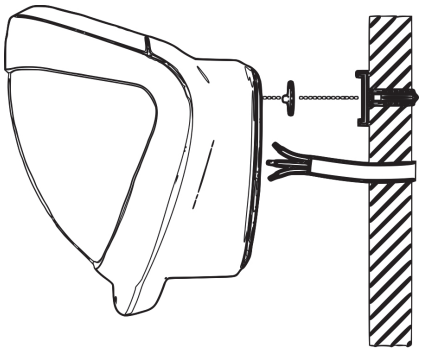

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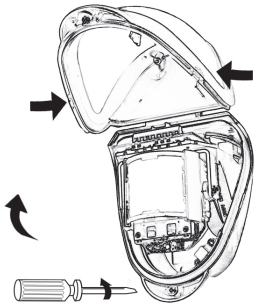

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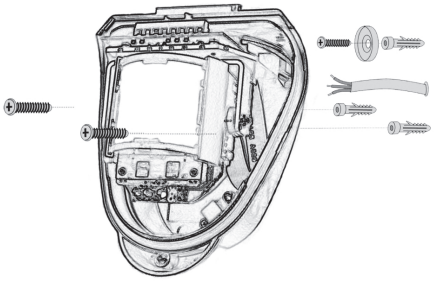

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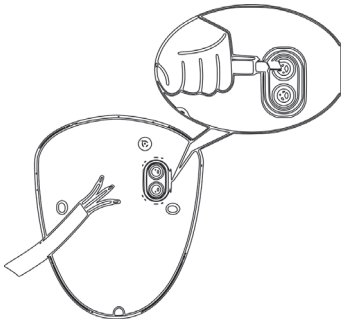

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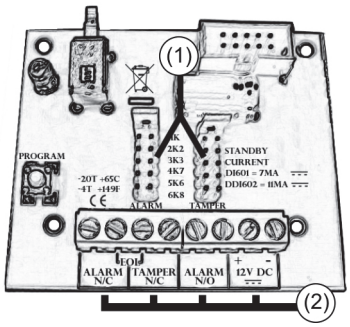

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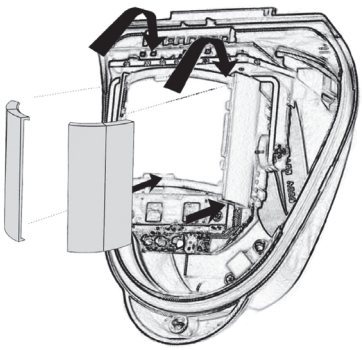

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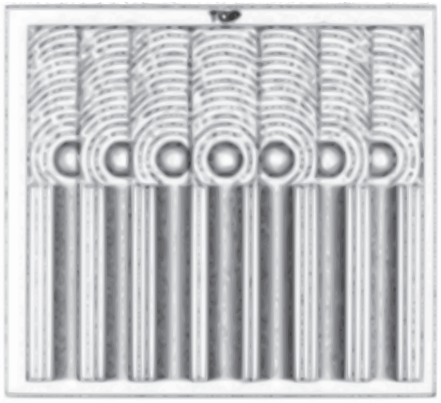

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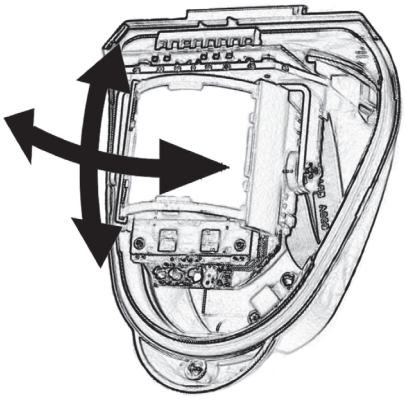

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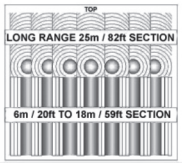

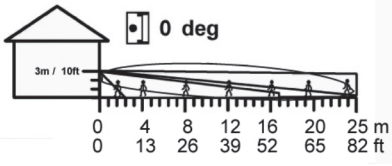

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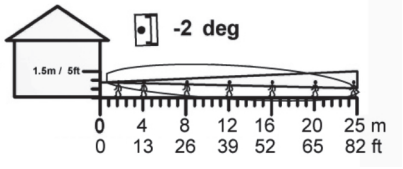

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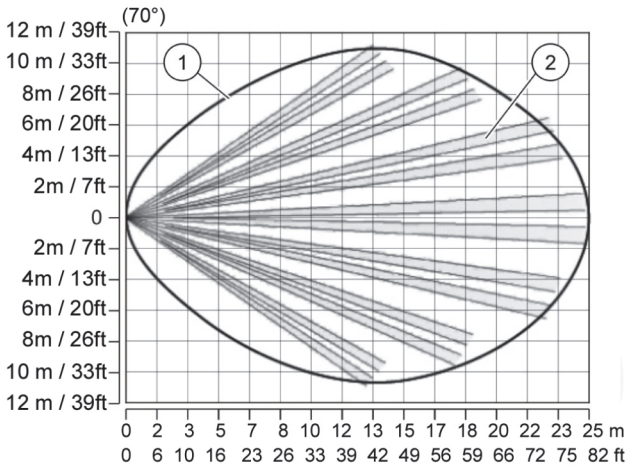

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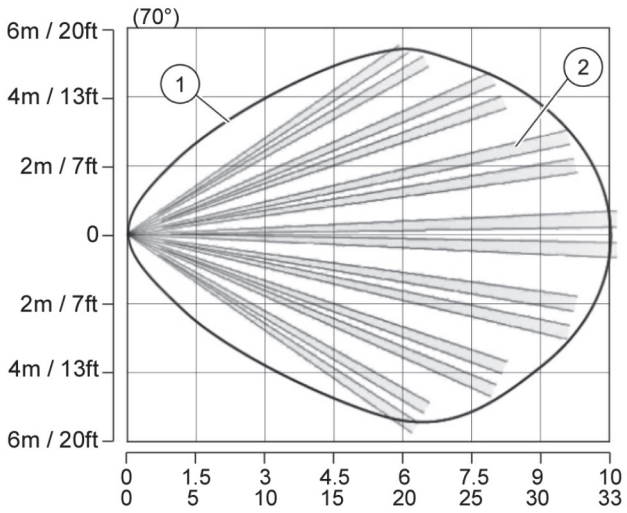

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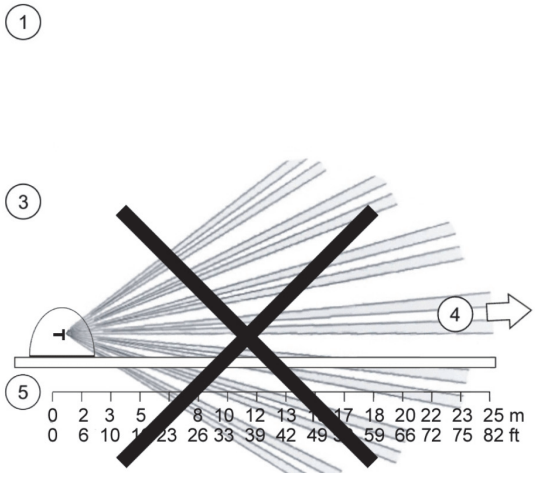

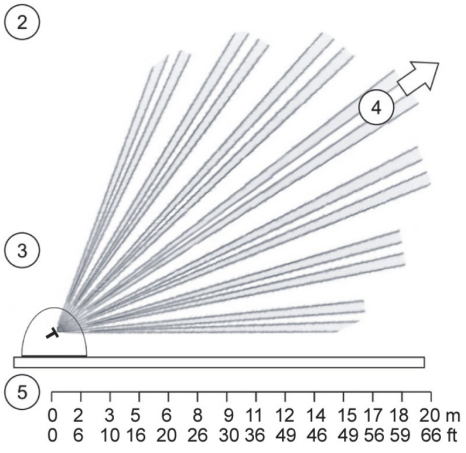

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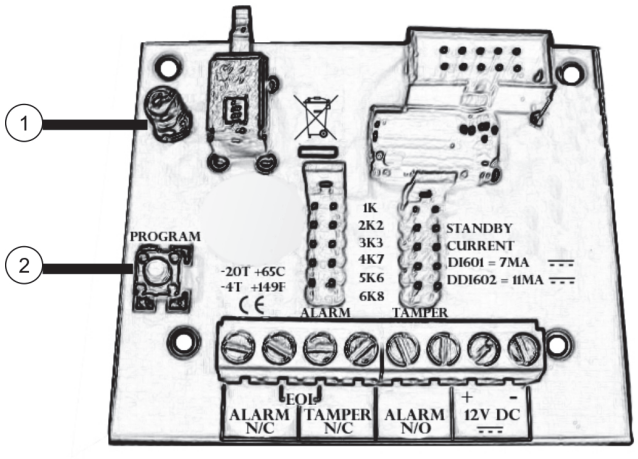

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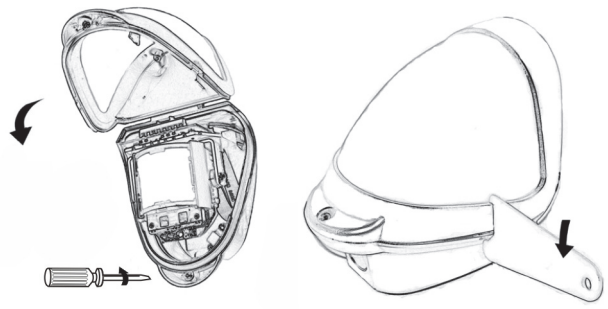

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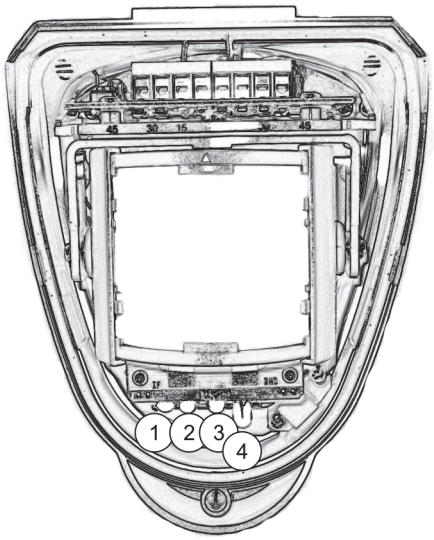

EN: Installation Sheet

Package

The package contains:

- 1 x DDI602U-F1
- 1 x drilling template for fixing holes
- 2 x 31.75 mm / 1.25 in. wall plugs
- 2 x 31.75 mm / 1.25 in. screws
- 1 x lens mask
- 2 x additional curtain shutters
- 1 x tamper cup
- 2 x tamper caps (different lengths)
- 1 x plastic locking tool
- 1 x installation sheet
- 1 x front cover screw cap

Introduction

The DDI602 Outdoor Dual PIR Detector is an outdoor motion detector and alarm trigger that uses two independent passive infrared detectors plus a microwave sensor module.

All three sensors must trigger to cause the detector to signal an alarm. The DDI602U-F1 uses triple detection technology to deliver precise, reliable presence detection. It is designed for use in CCTV and intruder alarm systems.

Programmable options include a variable pulse count and a choice of three detection ranges: 10 m / 33 ft., 18 m / 59 ft., and 25 m / 82 ft.

The integral dual-axis tilt sensor allows 180° of pan and 90° of tilt. This increases the speed of the outdoor installation and provides incredibly accurate aiming of the detection pattern.

The electronics module is acrylic coated for additional component stability. It is encased in a vandal-resistant, high-impact, UV stabilized plastic housing with an opaque polyethylene front cover ensuring that the sensor is impervious to and unaffected by weather conditions.

The combination of precision electronics, digital white light filtering, and double shielding eliminates false alarms from the sun and other visible light sources.

The DDI602U-F1 design has a neat and professional appearance that gives no visible indication of the orientation of the detector head and totally hides the wiring.

Quick installation

1. Mount and connect the detector following the instructions given later in this sheet.
2. Apply supply voltage to the unit.

   The detection LED (blue) flashes three times.
3. Wait approximately 2 to 3 minutes to allow the detector to settle.
4. Press the programming button once to activate walk test mode.

   The detection LED is now enabled for five minutes.

Note: The front cover must be fitted when walk testing.

The default settings are:

- Range: 25 meters / 82 feet
- Pulse count: 1
- Detection LED: off

Mounting the unit

During installation, protect the electronics against water, as trapped moisture can affect or damage the unit.

To mount the detector:

1. Drill the wall to accept the two fixing screws, the cable entry, and the tamper cup (if used). See Figures 1 and 3.

   A hole-drilling template is provided.

   Notes

   - Leave a minimum 10 cm (4 inches) clearance above the top of the detector housing to allow the cover and the detector to be positioned correctly.
   - We recommend using the tamper cup on uneven wall surfaces.
   - When mounting the units side by side, a minimum space of 1 m must be left between the detectors and the detectors must not be looking directly towards each other. No minimum space is required when mounting the units back to back.
   - The recommended optimum mounting height for the detector is 3 m. Whilst it is possible to mount the unit higher, this will give a reduced detection range and will require the detection subject to move further through the already reduced detection area before an activation is signalled.

2. Remove the cover assembly by loosening the locking screw. Squeeze the sides of the front cover to release the internal catches. The cover hinges from the top and lifts out of the location slot. See Figure 2.
3. Use a razor knife to open a rubber seal to allow the cabling into the unit (see Figure 4). Feed standard eight-core alarm cable into the cable entry. Bare the wires and connect to the top PCB terminal block (Figure 5, item 2).
4. Screw the unit to the wall ensuring that the tamper pin is correctly located and that the tamper microswitch is closed.

   To aid installation, two spare tamper feet are provided. One is 1 mm shorter and the other is 1 mm longer than the tamper foot originally fitted. The tamper foot is a push fit and can be removed by carefully pulling it from the pin. See Figure 1.
5. When the detector is aligned, connected, and programmed to suit the installation:
   a. Fit the cover to the detector base.
   b. Lightly screw the locking screw.
   c. Put the top of the locking tool into the small notch on each side of the cover, and then apply slight pressure until the cover locks into the base, as shown in Figure 15.
   d. Tighten the locking screw.

Connecting the unit

The DDI602U-F1 includes jumpers that let you configure internal end-of-line (EOL) resistor values, when EOL resistors are required. Values are: 1, 2.2, 3.3, 4.7, 5.6, and 6.8 kΩ. Figure 5 shows:

1. EOL resistor jumpers
2. Wiring points

Alternatively, you can remove the jumpers and connect a discrete resistor directly to the alarm or tamper outputs, as specified by third-party equipment.

Table 1: Connections

Terminal	Label	Description
1, 2	ALARM N/C	Alarm relay, normally closed
2, 3	EOL	End-of-line resistors
3, 4	TAMPER N/C	Tamper relay, normally closed
5, 6	ALARM N/O	Alarm relay, normally open
7, 8	+, − 12V DC	12 V⎓ power supply

Multibeam alignment and masking

The multifunction lens fitted to the DDI602U-F1 detector produces seven long-range beams and seven medium- to short-range curtain PIR beams. The PIR circuitry detects changes in heat and movement in the beam pattern; therefore items such as trees, shrubs, ponds, boiler flues, and animals should be considered when positioning the detector. The microwave module detects actual movement towards or away from the detector and is programmed to ignore any objects that move outside of the preselected detection range.

Note: PIR sensor is more sensitive to a movement across the beams, and less sensitive to a movement directly towards or away from the beams. Microwave sensor is more sensitive to movement towards and away from the sensor.

The detector module is fitted with two sliding shutters to reduce the detection angle of the PIR sensor only.

The curtains are fitted to the pan and tilt module as shown in Figure 6. Each section of the detector lens gives a coverage pattern of approximately 10 degrees.

An additional set of curtain sliders is provided should the beam pattern be narrowed even further, e.g. if the minimum detection angle of 10 degrees is required.

When coverage exceeds the desired detection area, adjust the module as required and mask off any beams, either vertically or horizontally, to avoid unwanted detection.

Use portions of the self-adhesive silver mask applied to the rear, smooth side of the lens as shown in Figures 9 and 10. Gently lift the top and bottom edges of the pan and tilt module to release the lens. To replace the module, please begin by sliding one side of the lens into the clips on the pan and tilt module. After one side is secure, do the same for the opposite side. Once both sides are secure, gently lift the top and bottom edges of the pan and tilt module and press on the lens to click it into place.

Always replace the lens the correct way up to ensure exact beam pattern coverage. The top of the lens is marked TOP as shown in Figure 7.

Table 2 below summarizes typical masking configurations for use when the range option is set to 25 meters.

Table 2: Masking configurations for maximum range

Configuration	Height (m / ft.)	Tilt (°)	Max. range (m / ft.)	Reference
Multibeam, optimum	3 / 10	0	25 / 82	Figure 9
Pet immunity [1]	1.5 / 5	−2	25 / 82	Figure 10

[1] Black area should be masked for pet alley applications up to 30 meters / 98 feet.

[2] Black area should be masked for curtain coverage applications.

Figure 11 shows the pattern for the maximum range in the optimum position (see Figure 9). Masking the top section of the lens reduces the range to 18 m / 59 ft. Item 1 is the microwave coverage, item 2 is the PIR pattern.

Figure 12 shows the pattern for the minimum range (10 m / 33 ft.) In this case masking the top section of the lens reduces the range to 6 meters.

Figure 13 shows possible alignments when the detector is mounted close to a wall.

Figure 13 legend

Item	Description
1.	90° mounting, not recommended
2.	55° mounting, recommended
3.	Detector housing
4.	Long range beam direction
5.	Wall

The alignment shown as item 1 in Figure 13 is not recommended. If the detector head is mounted at an angle of 90° to the perimeter, the mounting wall may cut off short and medium range beams. The long-range beam still will detect an intruder, however the wall can cause false alarms when heated by sunlight.

Item 2 in Figure 13 shows the recommended alignment. The detector head is mounted at a 55° angle to the perimeter. As a result, short and medium range beams are parallel to the perimeter, but the detection range along the perimeter is reduced to 20 m.

LEDs

LEDs are shown on Figure 16.

Figure 16 legend

Item	Colour	Description
1.	Red	PIR active
2.	Green	Microwave active
3.	Blue	Detection alarm
4.	Infrared	Walk tester communication

Programmable options

Pulse count

Pulse count is the number of times the detector must detect a presence before signalling an alarm.

The DDI602U-F1 includes magnetically immune, volt-free relay contacts that can be used to trigger alarm inputs on connected equipment.

The contacts are rated at a maximum of 24 V AC/DC at 50 mA.

When the pulse count is set to 1, the detector is most sensitive.

Detection LED enabled

- Off: Detection LED is disabled
- On: Detection LED signals detection

Programming

Figure 14 legend

Item	Description
1.	Programming LED (red)
2.	Programming button

All available settings are listed in Table 3 below.

Table 3: Programming settings

		Value		
Option		1	2	3
1.	Range (m / ft.)	10 / 33	18 / 59	25 / 82*
2.	Pulse count	1*	2	
3.	Detection LED	OFF*	ON	

* Default settings

To change any of DDI602U-F1 settings:

1. Press the programming button to select the option number you want to change. Press once for range, twice for pulse count, and three times for detection LED.
2. Wait until the programming (red) LED turns off (typically 4 seconds).
3. Count the number of times the programming LED flashes to determine the current value for that option.
4. Press the programming button to select the value number for the new setting. Example: To set the range to 30 m / 98 ft., press three times.

   The programming LED blinks twice to indicate that the new value was set.

Any alterations made to DDI602U-F1 settings are stored in the detector's nonvolatile memory.

Example

To change the detection LED setting from OFF to ON:

1. Press the programming button three times.
2. Wait until the programming LED turns off.
3. The programming LED flashes once to show that the current value is off.
4. Press the programming button twice.
5. The programming LED flashes twice showing that the new value has been stored. The detector returns to normal operation.

Resetting options

To reset the detector to the default settings:

1. Remove the power from the detector.
2. Press and hold the programming button (see Figure 14, item 2).
3. Apply the power to the detector.
4. After the programming LED flashes, release the programming button.

You can reset the detector either before installation, with a PP3 battery, or by applying 12 V to the unit on site.

Walk test

In walk test mode, the blue detection LED option is set to ON, and the pulse count option is set to 1. The detection LED lights each time the DDI602U-F1 detects your presence.

To enter the walk test mode, press the programming button once. The detection LED lights and pulse count 1 is automatically selected. The unit can then be aligned. The detection LED lights on the DDI602U-F1 every time detection takes place.

The test mode ends automatically five minutes after last detection. Alternatively, press the program button three times, or remove and then reapply power to cancel the walk test mode.

Note: When you conduct a walk test, make sure that the front cover is in place. Do not conduct walk tests with the cover removed.

The range of the detector increases without the protective front cover. Therefore the front cover must be fitted to establish the correct beam pattern. Use Table 3 on page 5 to adjust the range as necessary. Pan and tilt the lens module over the field of view to obtain the correct coverage area.

Accessories

UTC Fire & Security can provide a handheld walk tester DI601-WT to aid installations.

Specifications

Detection range	Programmable: 10 m / 30 ft., 18 m / 59 ft., or 25 m / 82 ft.
Coverage	10 to 70° detection angle, 30 x 24 m / 98 x 79 ft. coverage max.
Adjustment	180° pan, 90° tilt
Fresnel lens	28 zones for each detection element, which can be masked with the curtain sliders
Customized optics	Double silicon shielded quad element eliminates 50,000 lux of white light
LEDs	Top red: Programming LED Red: PIR active Green: Microwave active Blue: Detector alarm Infrared: Walk tester communication
Operating frequency	10.525 GHz
Outputs	Silent, solid state, magnetically immune.
NO	Volt free relay, signal contact 24 VAC/DC at 50 mA with an integral 25 Ω series resistor. Alarm time 5 seconds.
NC	Volt free relay, signal contact 24 VAC/DC at 50 mA with an integral 25 Ω series resistor. Alarm time 5 seconds.
Power input	9 to 15 V⎓
Current	11 mA (12 V nominal)
Pulse count	1 or 2
Temperature compensation	Analogue (thermistor) and digital sensitivity adjustment
Control	Digital microprocessor with nonvolatile memory
Walk test	Output test mode with LED indication. Option to disable LEDs.
Operating temperature	−30 to +65°C / −22 to 149°F
Housing	High impact ABS plastic with HDPE cover, UV stabilized
Dimensions, W x H x D	125 x 175 x 130 mm / 4.92 x 6.89 x 5.12 in.
Weight	323 g net, 549 g gross / 11.39 oz net, 19.37 oz gross
Mounting height	Variable up to 6 m / 20 ft. Optimum height 3 m / 10 ft. for full range
Cable < 200 m / 656 ft.	Utilising all three outputs (including tamper) — eight-core 7/0.2 mm² / 24 AWG
Cable < 500 m / 1640 ft.	Utilising all three outputs (including tamper) — eight-core 16/0.2 mm² / 20 AWG

Regulatory information

Manufacturer	UTC Fire & Security Americas Corporation, Inc. 1275 Red Fox Rd., Arden Hills, MN 55112-6943, USA Authorized EU manufacturing representative: UTC Fire & Security B.V. Kelvinstraat 7, 6003 DH Weert, Netherlands
Certification	CE ⓘ
INCERT	C0010502
Environmental class	IP65
FCC compliance	FCC ID: B4Z-CGGAA3 This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
IC	IC:1175C-GJDMOTION This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.
European Union directives	1999/5/EC (R&TTE directive): Hereby, UTC Fire & Security declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

	2002/96/EC (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info.
Usage restrictions	Only use the listed models in the following countries:
DDI602U-F1 (10.525 GHz):	USA

Contact information

www.utcfireandsecurity.com or www.interlogix.com.

For customer support, see www.interlogix.com/customer-support.