

Installation Guide

DU3 ULTRASONIC VEHICLE DETECTOR

The DU3 is a vehicle detector unit with self-contained electronics, designed for use with a drive-thru timer system. It should be installed at the service window, not at the menu board or speaker post.

Installation of the DU3 requires only one hole to be drilled through the wall for cable routing, and four screw holes for mounting the detector unit on the outside wall of the building, near the drive-thru service window. Its cables will be routed to the AC adapter and the Timer Signal Processor (TSP).

Installation of the DU3 should take approximately one hour. Follow these instructions.

Parts List

The following parts are included with the DU3. As the items are unpacked, check them against the packing slip. If any item is missing or damaged, contact your HME sales representative.

- Detector unit with 12 ft. (3.66 meter) cables
- AC to DC Adapter
- Mounting hardware

Tools Required

Be certain you have the items listed below before beginning the DU3 installation.

- Tape measure
- Phillips (cross point) and standard (slotted) screwdrivers
- Electric drill with ½ inch (13mm) and ¼ inch (6mm) bits to drill the mounting surface (wood, cinder block or metal) where detector unit will be installed
- Electrical tape (to insulate splices)
- Flat nose pliers, and other standard hand tools such as cutters, wire strippers, etc.

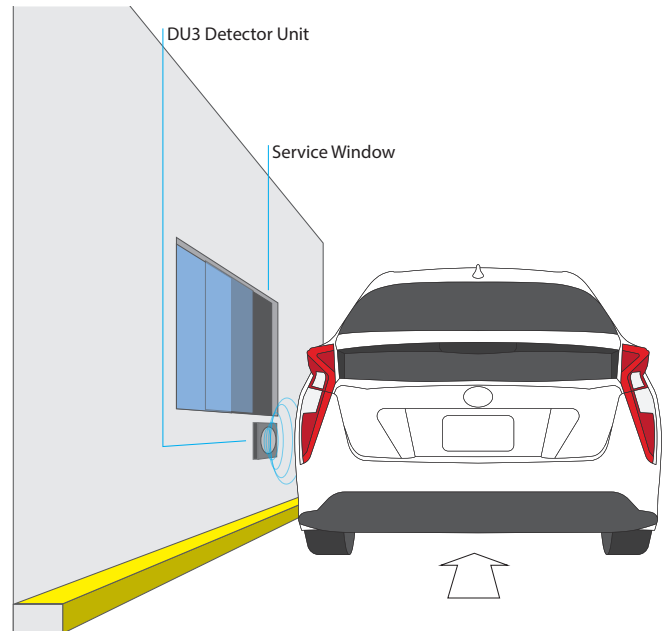


Figure 1. Typical DU3 installation site

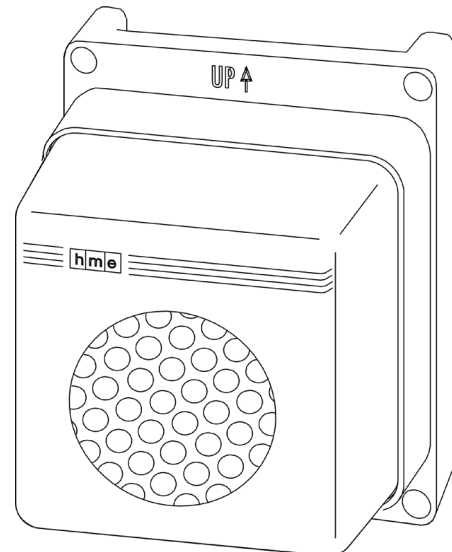


Figure 2. DU3 detector unit

1. DETECTOR UNIT MOUNTING

Determine where the detector unit will be mounted on the outside wall of the building. (See Figure 3.)

NOTE: Be certain there is an available AC electrical outlet near the mounting site, on the wall inside the drive-thru service.

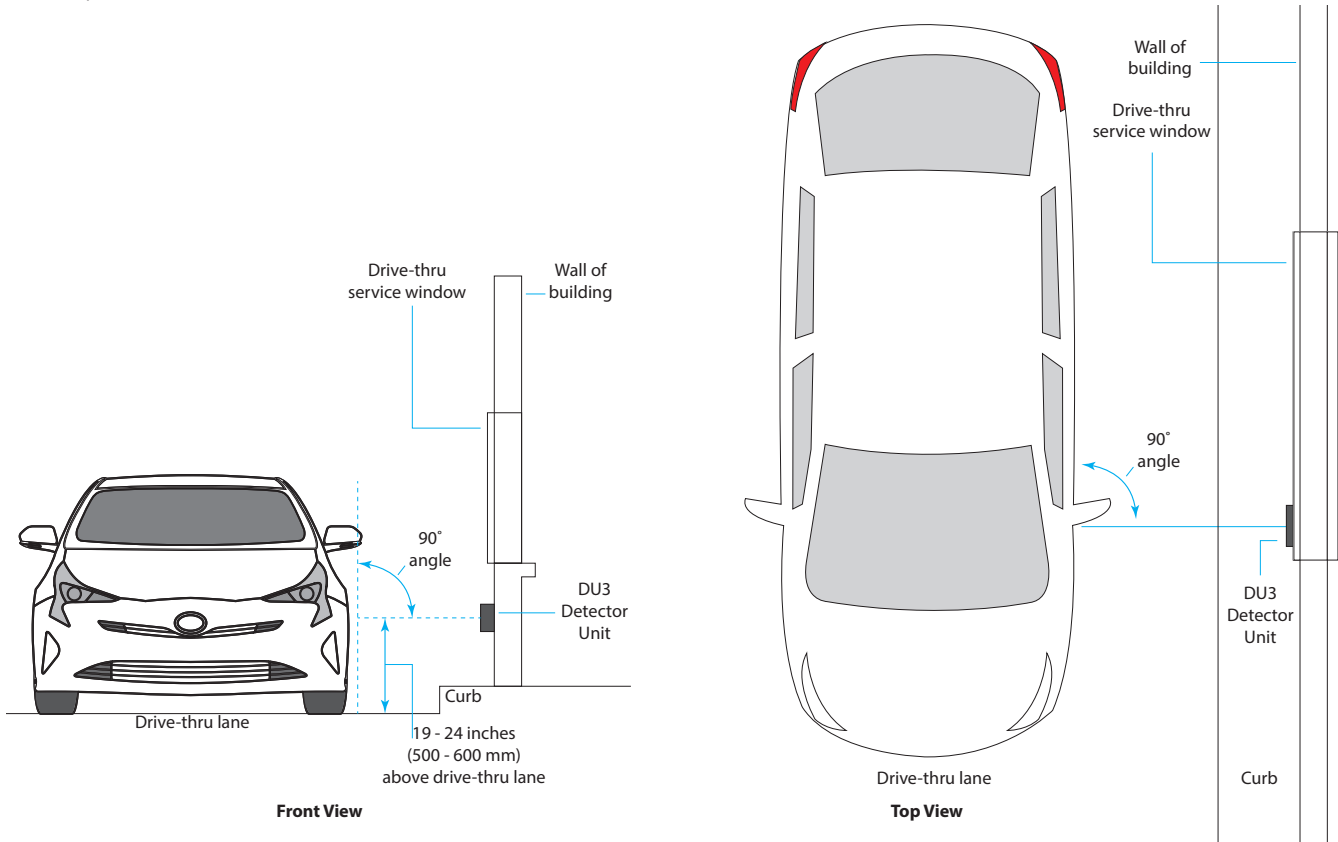


Figure 3. Typical DU3 position near drive-thru service window

- Drill a ½ inch (13mm) hole through the wall at the location where the detector unit will be mounted.
- Hold the unit centered over the hole, against the outside wall, and mark the wall through the four holes at the corners of the unit.
- Drill four ¼ inch (6mm) screw holes at the marked spots, deep enough to insert the enclosed screw anchors.
- Insert the enclosed screw anchors completely into the four screw holes.
- Route the 12 ft. (3.66 meter) cables from the back of the detector unit through the ½ inch (13mm) center hole.
- Hold the detector unit with the arrow on its top-front pointing up (Figure 4), and the screw holes at its four corners over the screw anchors on the wall. Push any slack cable back through the center hole into the building.
- Screw the four enclosed screws through the screw holes in the detector unit (Figure 4) and into the screw anchors, to fasten the unit securely to the outside wall.

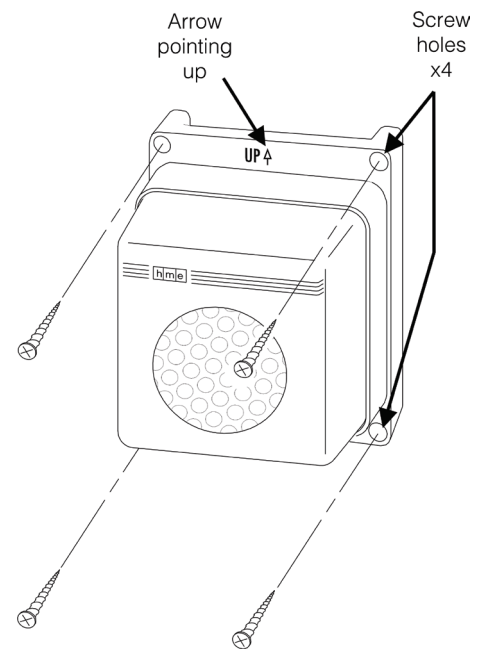


Figure 4. Mounting the DU3 detector unit

2. CABLE ROUTING AND CONNECTIONS

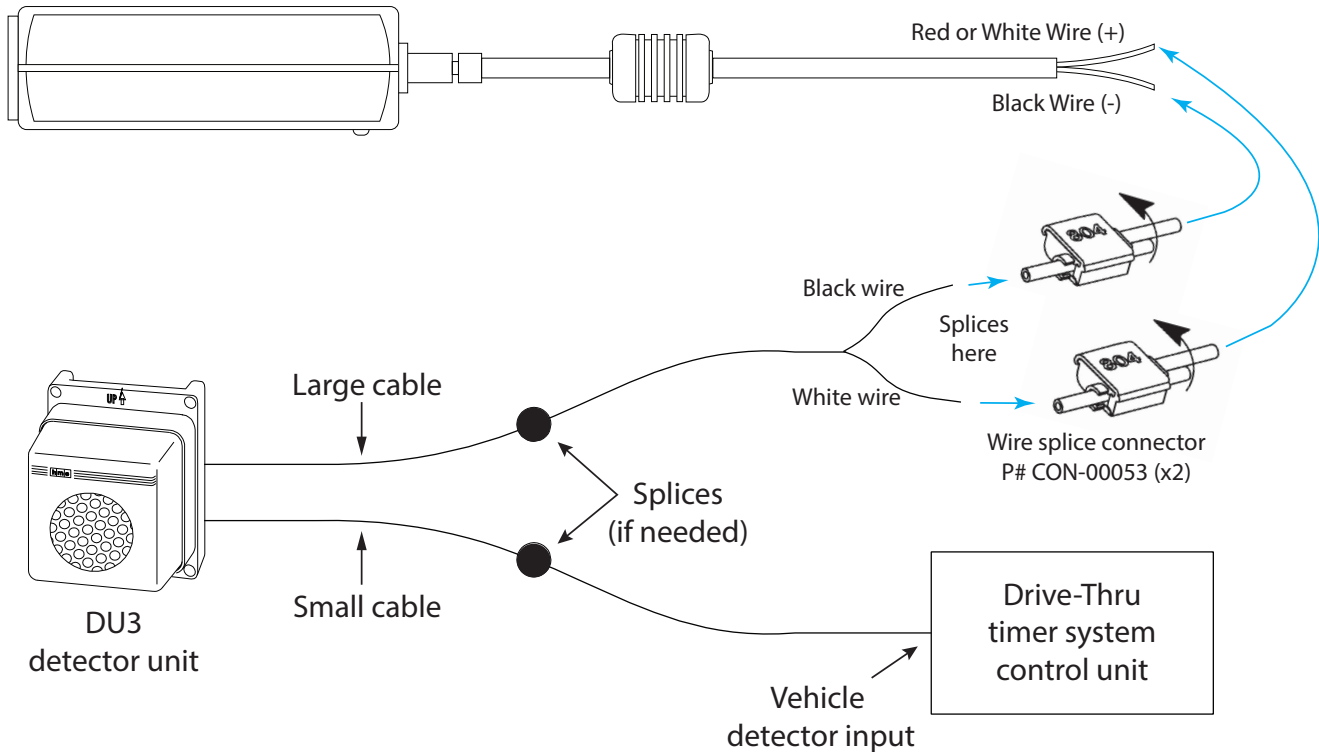


Figure 5. DU3 cable routing and connections

- Inside the drive-thru service area, route the end of the smaller cable from the detector unit to the drive-thru timer system (TSP). Connect the cable wires to the vehicle detector input of the timer system (TSP).
NOTE: If the smaller cable from the detector unit is not long enough, up to 188 ft (57 meters) of additional two-conductor (24 AWG) audio cable (or equivalent) can be spliced to it using your preferred splicing method. Connections are not polarity sensitive.
- Route the larger cable coming through the wall from the DU3 to the AC/DC power adapter. Use your preferred splicing method or a flat nose pliers and the blue 3M tap connectors (included with DU3 package) to splice the 16 AWG wires from the large cable to the 18 AWG wires from the AC/DC power adapter, as shown in Figure 5 (the black wire from the large cable splices to the black wire from the power adapter, while the white wire from the large cable splices to the red (or white) wire from the power adapter). See Appendix for 3M tap connector splicing instructions. Verify the spliced connection is good before continuing.
NOTE: If the larger cable from the detector unit is not long enough, up to 188 ft (57 meters) of additional two-conductor (16 AWG) cable (or equivalent) can be spliced to it using your preferred splicing method.
- Plug the adapter into an AC electrical outlet using a suitable IEC 60320 C13 Power Cord.

3. DU3 OPERATIONAL CHECK

- Go outside and listen for a clicking sound from the detector unit. It should click continually, each time it sends out a pulse.
- Have a vehicle driven up to the drive-thru service window. Check to be certain the DU3 has activated the timer system when the vehicle arrived (approximately 2 second delay). Have the vehicle driven away to be certain the timer system is deactivated (approximately ½ second delay).

NOTE: The window of detection is factory set to detect an object between 1½ and 7 feet (460 mm - 2.140 meters).

4. TROUBLESHOOTING AND CORRECTING PROBLEMS

Troubleshooting Checklist		
Problem	Probable Cause	Solution
No clicking sound is heard from DU3 detector unit.	AC/DC adapter is not properly connected.	<ol style="list-style-type: none"> 1. Be certain the larger cable from detector unit is properly spliced and making good contact with the AC/DC adapter cable. 2. Be certain adapter is plugged into AC electrical outlet. 3. If clicking sound is still not heard, call HME.
Clicking sound is heard at DU3 detector unit, but drive-thru timer system is not activated.	The timer system or DU3 detector unit may be malfunctioning or the cable from the timer system may be defective.	<ol style="list-style-type: none"> 1. Short the connectors at vehicle detector input of timer system (TSP). See Figure 5. <ul style="list-style-type: none"> • If vehicle-detect signal is not heard or seen, timer system is defective. Check timer system. • If vehicle-detect signal is heard or seen, timer system is OK. Problem may be with detector unit. Call HME. 2. If cable is spliced, short the timer system cable wires at the splice. (See Figure 5) <ul style="list-style-type: none"> • If vehicle-detect signal is not heard or seen, cable from timer system is defective. Replace cable. • If vehicle-detect signal is heard or seen, detector unit is malfunctioning. Call HME.

For assistance, call HME Customer Support at 1-800-848-4468

5. SPECIFICATIONS

Technical Specifications	
DU3 voltage input:	16 - 24 VDC
DC current:	100mA Minimum, 3A Maximum
Operating temperature range:	DU3 Detector: -40°F to 122°F (-40°C to 50°C) DU3 Power Supply: -13°F to 122°F (-25°C to 50°C)
Internal Heater:	Active below 50°F (10°C)
Acoustic Characteristics:	Ultrasonic, Frequency 50 kHz
Angle of Detection:	Target must be perpendicular $\pm 15^\circ$ @ 3 feet (0.91 meter).
Detection Range:	1 to 7 (± 1) feet (0.30 to 2.13 meter, ± 0.30 meter)
Turn On Delay:	2 (± 0.5) seconds
Turn Off Delay:	0.5 (± 0.3) seconds
Connectors:	None
Controls:	None
Indicators:	None
Vehicle Detection Output:	Relay Closure (SPST, normally open) Maximum Switching Power, 10 VA Maximum Switching Voltage, 100 VDC or peak AC Maximum Switching Current, 0.50 A Maximum Carry Current, 1.00 A
Cables:	Power Input: 2 conductor (16 AWG) cable 12 feet (3.66 meters) long. Vehicle Detector Output: 2 conductor (24 AWG) cable 12 feet (3.66 meters) long. Cables can be extended to 200 feet (61 meters) maximum.
Weight:	1.5 lb (0.68 kg)
Dimensions:	4.6 x 5.6 x 3.9 inches (116.84 x 142.24 x 99.06 mm)

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the installation/maintenance instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION: Changes or modifications not expressly approved by HME could void the user's authority to operate this equipment.

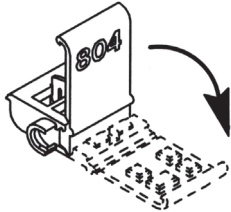
APPENDIX (3M SPLICING INSTRUCTIONS)

Installation Instructions

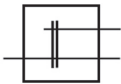
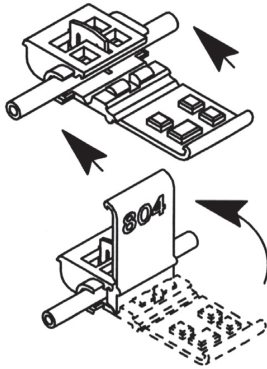
⚠ WARNING

Turn power off before installing or removing terminal. All electrical work should be done according to appropriate electrical codes.

1. Open hinged side wall.

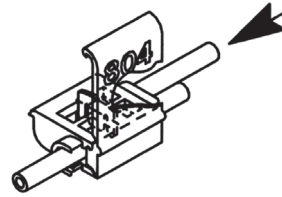


2. Place unstripped run wire inside run channel and close hinged side wall.

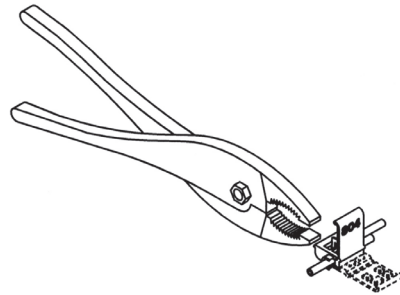


Tap Connector

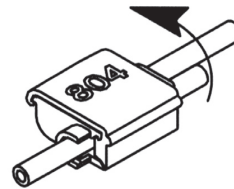
3. Insert unstripped tap wire completely into tap port.



4. Hold tool perpendicular to the wire and make the connection by crimping the u-contact down flush with the top of the insulator.



5. Close cover until latched.



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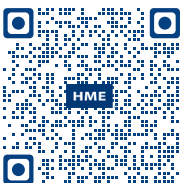
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