



HIT-NOT Proximity System

DDAC ACCESS MONITOR

Model: DDAC-AC

User's Manual v1.0



FREDERICK ENERGY PRODUCTS, LLC

1769 Jeff Road

Huntsville, AL 35806

1.800.489.6915

**US7,420,471; US8,169,335; US8,232,888; US5,939,986;
US6,810,353; AU2005289704; ZA2007/02919; ZA2008/02673;
ZA2010/06816, ZA2010/09068 Patent Pending**

Table of Contents

1. Overview.....	2-4
1.1 Theory of Operation.....	2
1.2 Operating Frequency.....	2
1.3 FCC/IC Information.....	3-4
2. Operation.....	4-6
2.1 Installation Information.....	4
2.1.1 Connecting External Devices.....	4
2.1.2 Interoperability Warning.....	5
2.2 Charging.....	5
2.3 Alerts.....	5
2.4 Maintenance.....	5
2.5 Adjustments.....	5
2.6 Interferences.....	5
2.7 Specifications.....	6
3 Revision History.....	6

1 Overview

The DDAC Access Monitor (DDAC AC), model DDAC AC, is part of a complete HIT-NOT® Proximity Detection System from Frederick Energy Products. The DDAC AC installs on a wall or pole and creates pulsing magnetic fields sensed by other devices. The other devices detect the magnetic fields and determine when they are within the field of the DDAC AC. The Personal Alarm Device (PAD) worn by pedestrians will send a special radio “echo” to the DDAC AC causing the DDAC AC to trigger an output that can activate external devices such as a door lock, horn, or relay.

The DDAC AC also includes a Bluetooth Module that can provide proximity-event data to remote users. Proximity-event data are stored in DDAC AC memory and the Bluetooth Module transmits the proximity events to a Bluetooth Relay, when the DDAC AC is near a relay. The relay then sends the data to the remote user via Cloud Services.

1.1 Theory of Operation

The primary functions of the DDAC AC are:

- To generate a 73 kHz field around itself and detect near-by PADs.
- To receive a 916.48 MHz RF signal from a Personal Alarm Device (PAD).
- To collect and store proximity events that can be transmitted by an internal Bluetooth Module to a Bluetooth Relay for subsequent transmission to remote users via Cloud Services.

The DDAC AC has an internal 73 kHz generator and a wire-wrapped ferrite radiator that creates a field to serve as a zone around the device. When a PAD is in close proximity to the DDAC AC, the PAD will detect the 73 kHz magnetic field from the DDAC AC and analyze its field strength. If the 73 kHz field strength received by the PAD is above a certain threshold, indicating the distance to the PAD is close enough, then the PAD will reply to the DDAC AC with a 916.48 MHz transmission. The DDAC AC has its 916.48 MHz transceiver ON when it is generating the 73 kHz magnetic field and is “listening” to receive any 916.48 MHz transmissions from a PAD. If the DDAC AC receives an indication that a PAD is within its zone, it will turn ON the connected device.

The Bluetooth Module is a component mounted on the printed circuit that transfers data collected/saved by the DDAC AC to Bluetooth Relay(s) installed at selected locations in a facility. The transfer occurs if the DDAC AC is mounted in the vicinity of a Bluetooth Relay, where the Bluetooth Module and Relay link-up and the data exchange occurs. The Bluetooth Relay(s) subsequently transmit the data to remote users via Cloud Servers.

1.2 Operating Frequency

The DDAC AC creates pulsing magnetic fields on a frequency of 73 kHz and receives RF signals on a frequency of 916.48 MHz.

1.3 FCC/IC Information

The FCC ID for the DDAC AC is QUI-DDAC-PDS-GEN2 and complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received including interference that may cause undesired operation.

Any intentional or unintentional changes or modifications to the configuration of the Personal Alarm Device not expressly approved by Frederick Energy Products LLC could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is not guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/technician for help.

Conformité aux normes FCC Cet équipement a été testé trouvé conforme aux limites pour un dispositif numérique de classe B, conformément à la Partie 15 des règlements de la FCC. Ces limites sont conçues pour fournir une protection raisonnable contre les interférences nuisibles dans une installation résidentielle.

Cet équipement génère, utilise et peut émettre des fréquences radio et, s'il n'est pas installé et utilisé conformément ment aux instructions du fabricant, peut causer des interférences nuisibles aux communications radio.

Rien ne garantit cependant que l'interférences ne se produira pas dans une installation particulière. Si cet équipement provoque des interférences nuisibles à la réception radio ou de télévision, qui peut être déterminé en comparant et en l'éteignant, l'utilisateur est encouragé à essayer de corriger les interférence par une ou plusieurs des mesures suivantes:

- Réorienter ou déplacer l'antenne de réception.
- Augmenter la distance entre l'équipement et le récepteur.
- Branchez l'appareil dans une prise sur un circuit différent de celui auquel le récepteur est

connecté.

--Consulter le vendeur ou un technicien radio / expérimenté.

Les changements ou modifications à cet appareil sans expressément approuvée par la partie responsable de conformité pourraient annuler l'autorité de l'utilisateur de faire fonctionner cet équipement.

The required notices are specified in the RSS documents (including RSS-Gen) applicable to the equipment model. **These notices are required to be shown in a conspicuous location in the user manual for the equipment, or to be displayed on the equipment model. If more than one notice is required, the equipment model(s) to which each notice pertains should be identified.** Suppliers of radio apparatus shall provide notices and user information in **both English and French.**

This device complies with Industry Canada license-exempt RSS-standards(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme avecx Industrie Canada exempt de licence Rss standard(s). Son fonctionnement est soumis aux deux conditions suivantes:

- (1) cet appareil ne peut causer d'interférence, et*
- (2) cet appareil doit accepter toute interférence, y compris des interférences qui peuvent provoquer un fonctionnement indésirable du périphérique.*

2 Operation

2.1 Installation Information

The DDAC AC is mounted on a wall or pole near the connected device to be controlled. Mounting scheme and location can vary depending on use case and available wall power. Metal near the DDAC AC may impact performance by reducing the field size. A non-metallic mounting tube is the default mounting that if used per instructions will usually circumvent interference by nearby steel structure. After installing the DDAC AC, performance of the unit should be verified by operation and test.

2.1.1 Wiring External Devices

The DDAC AC comes with a two-conductor pig-tail harness that plugs into the base of the unit. This harness can be used to directly power a device at 12VDC 2A or trigger an external relay to run devices with different power requirements.

2.1.2 Inoperability Warning

The DDAC AC does not give any inoperability warning. Proper function should be regularly checked.

2.2 Charging

The DDAC AC does not require charging. It is directly powered via a 110 to 12V wall-wart adapter.

2.3 Alerts

DDAC Access Monitors are designed to automatically adjust and maintain the original magnetic field size.

The DDAC AC tolerates voltage fluctuations from 12-15 VDC. Only use the supplied 12V adapter.

2.4 Maintenance

The DDAC AC should be regularly cleaned to reduce buildup of dust and dirt. The user should check to see if the LEDs are working before using the system each day. There is a blue power-LED visible on the DDAC AC housing. There also is an LED that indicates the alarm status of the DDAC AC and works in tandem with the connected output of the DDAC AC.

2.5 Adjustments

Magnetic field size can be adjusted by the user. These adjustments are made remotely using a Range Adjust Tool, Model No. HN-RANADJ, described in a User's Manual specifically for the Range Adjust Tool. The range can also be adjusted via the pot on the PCB under the lid.

These adjustments must be made ONLY by an approved person.

2.6 Interferences

The DDAC Access Monitor may receive false triggering (generate an alarm) signals from some RF-based devices including high power radios and cell phones. Such devices will need to be moved further away from the DDAC AC.

2.7 Specifications

Part Number: DDAC AC

Size: 12.3" x 4" x 7.5" with Mounting Tube; 8.875" x 3.06" x 3.52" without Mounting Tube

Weight: 3.8 lbs./ 1.724 kg

Input Voltage: 12 VDC (nominal)

Magnetic Field Frequency: 73 kHz pulsing AC field. Magnetic field pulses occur approx. 3% of the time.

Maximum Current Draw: Less than 5A. It is not a constant draw with a magnetic field pulsing at 3% of the time. Current draw between pulses is very low and the overall current draw is low.

Transceiver Transmit/Receive Frequency: 916.48 MHz

Transmitter Power: 0.001 W (typical)

Bluetooth Module: RN4020

Operating Temperature Range: -30°C to + 55°C; -22°F to 131°F

3 Revision History

3.1 Version 1.0 – Aug. 19, 2024

Original Release. No revision history.