Excellence in Compliance Testing

Certification Exhibit

FCC ID: SM6-HOTRODV2ML
IC: 9235A-HOTRODV2ML

FCC Rule Part: 15.249
IC Radio Standards Specification: RSS-210

ACS Project Number: 12-0115

Manufacturer: Mueller Systems
Model: AHRML-DL

Manual

HOTRODV2
Installation Manual

PN 880-0083-001

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FCC Information

Changes or modifications not expressly approved by Mueller Systems, LLC could void the user's authority to operate the equipment.

IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

"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 no 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/TV technician for help.

IC Information

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This device complies with Industry Canada licence-exempt RSS standard(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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

1. Introduction

This document is intended to assist professional installers with Mueller Systems AMR transmitters. It provides instructions on how to successfully connect, operate, and troubleshoot the transmitters. Mueller's remote meter reading transmitters were designed with an "easy to install approach" for utilities. The AHRAG-DL, AHRPL-DL, and AHRML-DL allow the utility to receive data from any Mueller water meter equipped with a Translator register. The transmitter collects data from the register and transmits it via radio frequency (RF) to be collected by a mobile receiver.

2. Product Features

Figure 1

The thermoplastic housing design reduces material and helps eliminate air space within the transmitter, Figure 1. Mounting features include two holes for wall installation and a 1/2 inch female PVC pipe fitting for easy pit installation. The transmitter units are molded from grey plastic. The high power unit should only be used within a metal meter box. The medium power unit should only be used within a plastic meter box. The low power unit should only be used outside a meter box. A quarter wavelength whip antenna is utilized. A primary lithium battery is utilized to power the device. The device will transmit readings every three seconds, but that value is configurable at the factory. The electronic design utilizes the latest in RF microchip technology which reduces cost and increases reliability when compared to older RF designs. In order to protect the AMR transmitter from moisture ingress, the design incorporates the use of thermoplastic injection molded housings, rubber seals, a potting compound that completely encases the internal electronics and a coated circuit board which provides the final barrier of protection. Internal wire strain relief has been built into the housing to protect the wire

connections against damage. Please note that this does not mean meters or registers can be carried while supported only by the AMR transmitter or wiring.

3. CONNECTING AND OPERATING THE MUELLER AMR TRANSMITTER

The AMR transmitter is preprogrammed prior to being attached to the meter. All pit set units come with either 5' or 25' of wire attached and potted at the factory as specified. If a retro fit is required, the wires should be spliced to the existing wires coming from the register. Wire the red to red, green to green, and black to black wires using 3M UY2 Scotchlok splices with the E-9Y application tool.

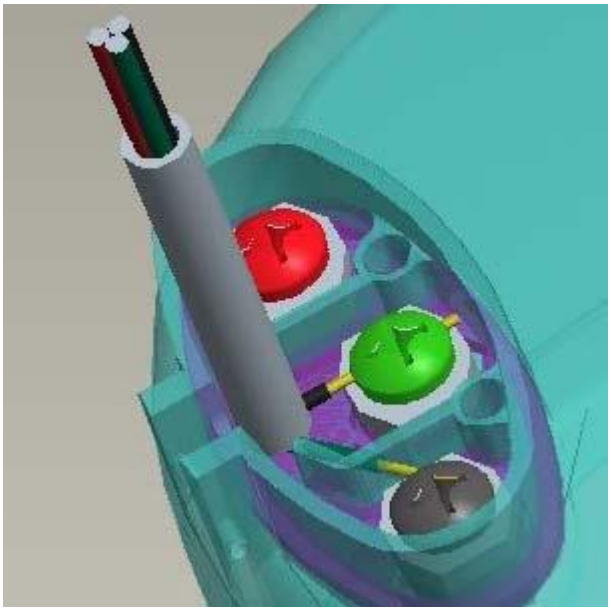

Figure 2

If a new wall unit is being installed it can be directly mounted to any surface by using the holes shown in Figure 2 and the appropriate screws. New pit installations can use the mounting method described above or a ½" PVC pipe can be used in conjunction with the PVC Installation Slot shown in Figure 2. This feature allows for quick easy installation without the use of zip ties, wraps, tape, or adhesives. Two solid stops were included in the PVC Installation Slot in order to prevent the wire from being pinched when the PVC pipe is installed. For best performance the top of the transmitter should be placed approximately six inches below the pit lid. A TRU-Readremote display can be used in conjunction with the Translator register and AMR transmitter for visual remote readings if desired. Refer to TRU-Read installation instructions below to attach both devices. When wiring the TRU-Read to the Translator you must connect the red wire to the red terminal, the green to green, and the black to black, Figure 2.

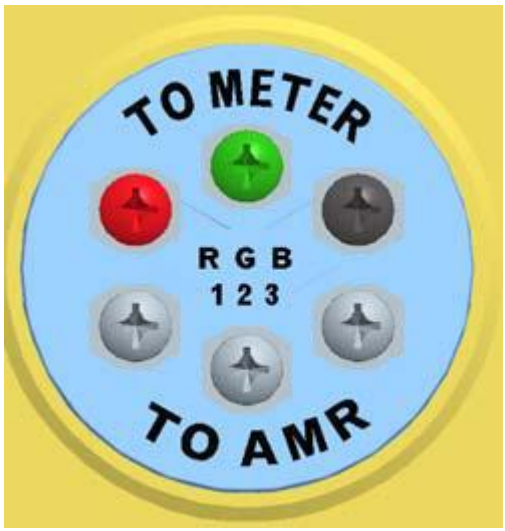

Figure 3

To attach the AMR transmitter, wire the red wire to terminal #1, the green wire to #2, and the black wire to terminal #3 on the TRU-Read,Figure 3. Once the transmitter is attached it will begin sending out data automatically. Please note that Mueller Systems AMR transmitter and TRU-Read should never be disassembled or user serviced.

4. AMR TRANSMITTER TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE
POOR RANGE	• CHECK ORIENTATION OF THE HOT ROD ANTENNA • CHECK THE RECEIVER ANTENNA • CHECK FOR INTERFERENCE
NOT TRANSMITTING CORRECT DATA	• CHECK WIRING CONNECTIONS • CHECK WIRES FOR SHORT • CHECK FOR INTERFERENCE • CHECK DISTANCE TO RECEIVER • CHECK TRANSLATOR STATUS
NOT TRANSMITTING	• CHECK POWER ON AMR TRANSMITTER

5. FCC INFORMATION

The AMR transmitters operate in the license exempt 902 MHz to 928 MHz ISM band and are certified for operation in the US under FCC Part 15. The FCC IDs are SM6-HOTRODV2ML, SM6-HOTRODV2PL, and SM6-HOTRODV2AG. Information pertaining to their certification can be found on the web at WWW.FCC.GOV.

6. IC INFORMATION

The AMR transmitters operate in the license exempt 902 MHz to 928 MHz ISM band and are certified for operation in Canada. The IC IDs are 9235A-HOTRODV2ML, 9235A-HOTRODV2PL, and 9235A-HOTRODV2AG. Information pertaining to their certification can be found on the web at http://www.ic.gc.ca/eic/site/ceb-bhst.nsf/eng/home.