## Overview

The Mio R-3 remote (**FG148-03**) provides custom control features, contained in an elegant handheld rechargeable device. The Mio R-3 communicates with a NetLinx master via a wireless ZigBee® network. The Mio R-3 is pre-loaded with firmware that allows joining to ZigBee Pro 2007 networks, but may be upgraded with firmware allowing access to older ZigBee 2004 networks.

You need VisualArchitect and KeypadBuilder to properly program this device. The application and documentation are available from **www.amx.com**.
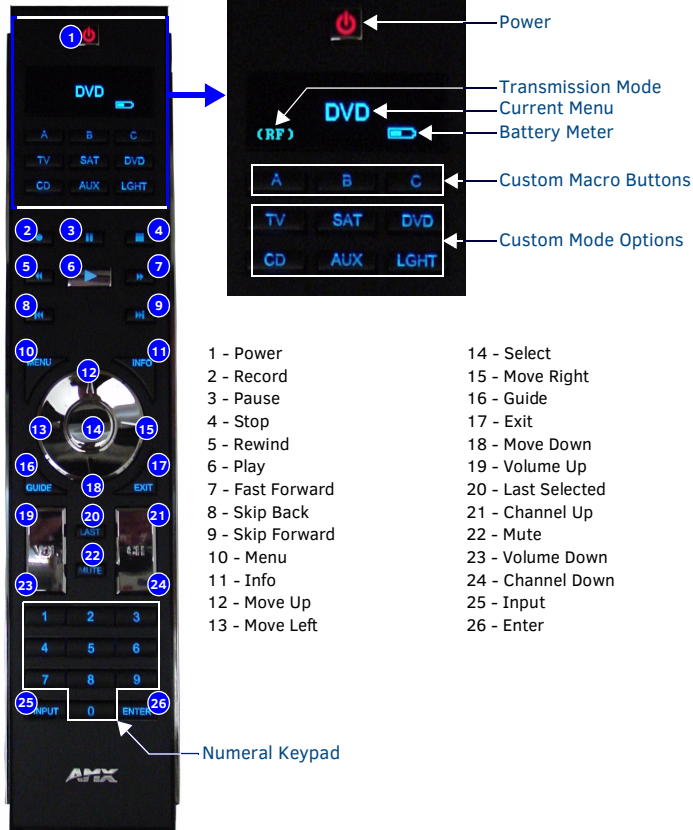
1 - Power	14 - Select
2 - Record	15 - Move Right
3 - Pause	16 - Guide
4 - Stop	17 - Exit
5 - Rewind	18 - Move Down
6 - Play	19 - Volume Up
7 - Fast Forward	20 - Last Selected
8 - Skip Back	21 - Channel Up
9 - Skip Forward	22 - Mute
10 - Menu	23 - Volume Down
11 - Info	24 - Channel Down
12 - Move Up	25 - Input
13 - Move Left	26 - Enter

FIG. 1 THE MIO R-3 DEVICE

Touch And Tilt Sensor

The MIO R-3 wakes up upon touching either the chrome side rails or pressing a button. When the remote times out while holding it, you can reawaken the device by tilting it. Errant jostling such as a bumped table will not wake the device unless you are holding it.

Specifications

The MIO R-3 device specifications are as follows:

MIO R-3 SPECIFICATIONS	
Dimensions (HWD)	9.50 x 2.00 x .74 (241.3 mm x 50.8 mm x 18.80 mm)
Weight	• .45 lbs (20 g) without batteries • .55 lbs (25 g) with batteries
Battery	Rechargeable Lithium-Ion
Transmission Frequencies	• Zigbee RF wireless network • IR 38 Khz • IR 455 Khz
Transmission Range	• ZigBee: 100 feet (30.48m) • IR 38 Khz: 100 feet (30.48m) • IR 455 Khz: 50 feet (15.24m)
Top Components	• LED - blue backlit buttons indicate device is awake • Display (OLED) - 128 x 32 pixels, active area is 29.42mm x 7.98mm • Pushbuttons - the power button is red backlit; the rest are blue backlit buttons. 45 buttons; 9 custom buttons (3 macro and 6 device).

MIO R-3 SPECIFICATIONS (CONT.)	
Rear Component	• Programming Port - 2.5 mm stereo female conductor jack • Battery Door • Rechargeable Battery Connection
Supported Languages	• English • Korean • French • Simplified Chinese • German • Portuguese • Greek • Russian • Italian • Spanish • Japanese • Other languages supported by Glyphs
Certifications	• FCC ID: CWU-NXR-MO • IC: 5078A-NXRMO • CE • IEC-60950 • Japan Approval • Designed for ZigBee
Operating Environment	• Operating Temperature: 0° to 40° C (32° to 104° F) • Storage Temperature: -20° to 70° C (-4° to 158° F) • Relative Humidity: 5% to 85%
Included Items	• MIO-RBP Rechargeable Lithium-ion Battery (FG147-10)
Other AMX Equipment	• DB-9 extension cable (FG10-727) • Programming Cable - a 3 wire, 2.5 mm stereo jack (FG10-817) • Custom engraving (FG147-01) • MIO-RCC Kit (FG147-03K) • MIO-RCC Charging Base (FG147-02) • NXR-ZGW (FG5791-01) • NXR-ZRP-PRO (FG5791-03)

Installing Your Custom Buttons

1. Flip and turn the MIO R-3 device so that the buttons are facing away from you and the device is upside down.
2. Holding the device in both hands, place your thumbs on the battery door and push up to slide the battery door free. The battery door will slide in the direction of the bottom end of the device.
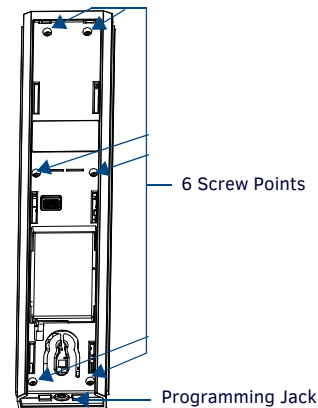3. Unscrew the 6 screw points indicated in FIG. 2.

FIG. 2 INTERNAL MIO R-3 COMPONENTS

4. Turn the unit over so the buttons are facing you.
5. Lift the top assembly away from the PCB.
6. If necessary, push out the standard buttons from the front of the top assembly.
7. Drop on your custom button pad and verify the alignment with the guide posts on the PCB.
8. Place the top assembly back down on the PCB and return the unit over, exposing the 6 screw points.
9. Tighten the 6 screw points.
10. Place the battery door back on the device, and slide the door upwards to lock it in place.

Inserting the Lithium-Ion Battery into The MIO R-3

To install your Lithium-Ion battery into the MIO R-3 remote:

1. Flip and turn the device so that the buttons are facing away from you and the device is upside down.
2. Holding the device in both hands, place your thumbs on the battery door and slide the battery door free. The battery door should slide toward the bottom end of the device.
3. Connect the terminal end of the Lithium-Ion battery to the port as shown in FIG. 3. It may be necessary to use a thin, blunt non-conductive object to seat the battery connector fully within its port.
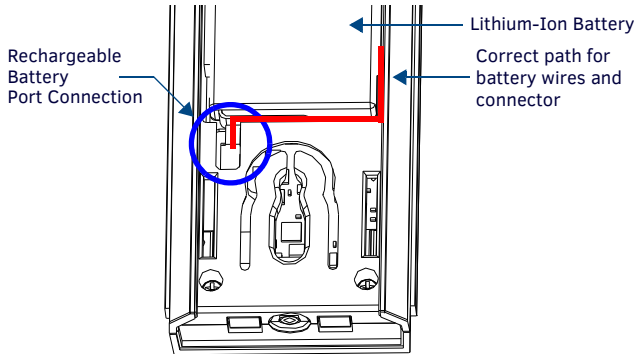

FIG. 3 RECHARGEABLE BATTERY PORT ON THE MIO R-3 REMOTE

Battery Low Indicator

When the battery charge level is too low to sustain continuous operation, the LCD flashes "Battery Low" and the device shuts down.

Setup Mode

The *Setup* mode allows you to set the following device features.

Entering *Setup* mode

1. Press and hold the **STOP** button and the **INPUT** button. The two buttons must be pressed within 0.1 seconds of each other and held down for 2 seconds. The device indicates you are now in *Setup* mode. See below for available modes.
2. Press the **EXIT** key when you are finished.

Note: *Your settings will not be lost in the event of battery removal or failure.*

Transmit Mode

Press button **1** to select from one of the different available transmit modes. The transmit mode changes each time **1** is pressed. The predetermined modes are *IR 38 Khz*, *IR 455 Khz*, *ZigBee Mode*, *IR 38 + Zig*, and *IR 455 + Zig*. The display indicates the selected mode.

Timeout Adjustment

Press button **2** on the remote to change the sleep timeout from the default. Each time **2** is pressed, the sleep timeout raises incrementally. The pre-determined sleep timeouts are 3, 6, 9, and 12 seconds. The display indicates the selected sleep timeout.

Download Mode

In order to download new firmware or a new configuration or font file to the MIO R-3 remote using the remote's program port, the remote must first be placed into *Download* mode. Press **3** on the remote to toggle the *Download* mode OFF and ON. The *Download* mode must be ON before you can download a file to the MIO R-3. While the *Download* mode is ON, the device will not go to sleep. Once the download is complete, this setting must be returned to *Download Off*. A firmware download will cause the remote to reset and this will automatically reset the remote to *Download Off*.

Debug Mode

Pressing button **4** on the remote toggles *Debug* mode between *ON* and *OFF*. Pressing the button toggles the mode; 2 seconds after selecting the mode, the menu returns to *Setup* mode. The remote will remain in the last mode selected until *Setup* mode is once again entered and this mode is changed by pressing the **4** button.

Firmware Version

Pressing button **5** on the remote displays the remote and ZigBee firmware versions currently loaded on the remote. To view the available firmware versions, press the **Move Up** arrow on the scroll wheel to scroll up. and pressing the **Move Down** arrow will scroll down. When finished, press **Exit** to save the changed firmware information and leave *Setup* mode.

Device ID

Pressing button **6** displays the device's Device ID number. To change the Device ID number, press the **Move Up** arrow on the scroll wheel to scroll up. and pressing the **Move Down** arrow will scroll down. To move the cursor to the next number, use the **Move Left** or **Move Right** arrows on the scroll wheel to change positions.

After all numbers have been configured as desired, pressing the center button on the scroll wheel will store the entered Device ID into memory. After the Device ID is stored into memory, the display will return to *Setup* mode.

LED Awake Brightness

Pressing button **7** on the remote toggles the *Power LED Brightness* mode from LOW to MED and then HIGH. The display indicates the selected mode.

LED Sleep Mode Brightness

Pressing button **8** on the remote toggles the Sleep Brightness mode from OFF to LOW and then MED. The Sleep brightness is the state the MIO R-3 assumes while in the charging cradle.

ZigBee ID PAN, Channel and System Connection

Pressing the **9** button will display the current Extended ZigBee Personal Area Network (PAN) ID and channel for the device. In order to display the NetLinx Master IP and ZigBee gateway EUI addresses, press the **Move Up** arrow on the scroll wheel to scroll up. and pressing the **Move Down** arrow will scroll down. When finished, press **Exit** to save the Extended PAN ID and channel information and leave *Setup* mode.

Site Survey

Pressing the **0** button makes the MIO R-3 scan all frequencies and store all joinable Extended PAN IDs and Channels in memory. The display will show the first accessible Extended PAN ID and Channel.

To display other Extended PAN IDs and Channels found in the area, press the **Move Up** or **Move Down** arrows on the scroll wheel until the remote displays the desired Extended PAN ID and Channel.

To connect to a particular Extended PAN ID, pressing the center button on the scroll wheel will initiate the remote to connect to a network. If no networks were found, the display will read **SCAN FAIL** before returning to *Setup* mode.

Programming The MIO R-3 Using KeypadBuilder

Most functionality of the MIO R-3 is handled using the KeypadBuilder application. Go to **www.amx.com** for the supporting documentation.

The MIO R-3 recognizes a select number of Serial Commands and SEND_COMMANDs. For a full list and descriptions, consult the *Programming* section of the MIO R-3 instruction manual at **www.amx.com**.

Using the Programming Jack on The MIO R-3

The programming jack (see FIG. 2) is used for communication between the device and KeypadBuilder. The programming jack uses a three-wire, 2.5mm stereo jack, and you can order the programming cable (**FG10-817**) from AMX if you do not currently possess one.

To download KeypadBuilder Configuration Files:

1. Set the MIO R-3 *Download* mode to ON.
2. Flip and turn the device so that the buttons are facing away from you and the device is upside down.
3. Holding the device in both hands, place your thumbs on the battery door and slide the battery door free. The battery door will slide in the direction of the bottom end of the device.
4. Connect the 2.5mm stereo plug (male) end of the programming cable (**FG10-817**) into the programming jack on the bottom side of the remote device.
5. If necessary, connect the DB-9 end of the programming cable to the female DB-9 connector on the DB-9 extension cable (**FG10-727**).
6. Connect the female DB-9 terminal end of the extension cable to the port on the back of your computer.
7. Configure the communication parameters in KeypadBuilder.

Patents

This product is covered by the following patents:

- AMX
- U.S. Patent No. D 602,858
- U.S. Patent No. D 520,495
- U.S. Patent No. 7,786,623

This product employs or practices certain features and/or methods of one or more of the following patents:

- SIPCO, LLC
- U.S. Patent No. 7,103,511
- U.S. Patent No. 6,914,893
- U.S. Patent No. 7,697,492