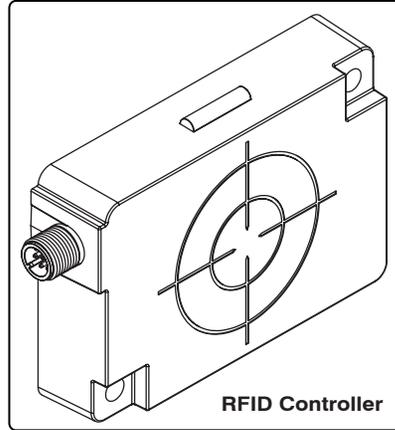


This document provides instructions and information designed to assist users in the hardware setup and configuration of the RFID Controller.

**Installing the RFID Controller**

Select a suitable location to mount the RFID Controller. The Unit may be mounted to wood, plastic fixtures and metal plate surfaces. However, do not recess the controller in metal. For optimal performance, allow 60 mm (2.5 inches) clearance from metallic objects around the sides of the controller.

To secure the controller to the mounting surface, use two M5 (#10) diameter screws and two washers. The Unit may be mounted horizontally or vertically, but should be aligned in such a manner that the LED indicators can be seen during operation.



1. Fasten the Unit to the mounting surface using two screws (place one washer on each screw before insertion). Tighten screws to between 1.3 and 1.7 Nm (12-15 lbs per inch).
2. Download the USB driver software bundle from the Balluff website ([www.balluff.com](http://www.balluff.com)). Extract the .zip file archive to a separate folder on the desktop of the host computer.
3. Attach the 5-pin, reverse keyed female M12 interface connector from a suitable USB interface cable (CBL-1525) to the 5-pin, reverse keyed male M12 connector on the Unit.
4. Plug the remaining end of the USB interface cable into a USB port on the host computer. The LEDs on the controller will flash. The amber colored LED 2<sup>2</sup> will remain lit to indicate that the controller is in USB mode (see Figure 3). At this point, Windows™ will detect the new hardware device and request the location of the USB driver files.
5. Browse to the folder containing the USB driver files. Refer to the “USB Driver Installation Instructions”, included with the USB driver download, to complete the installation of the USB driver.
6. To verify operations, download the serial version of the HF Dashboard Utility. The HF Dashboard Utility allows users to configure and control their controllers and send RFID commands for testing purposes.

**Controller Dimensions**

Millimeters  
 [Inches]

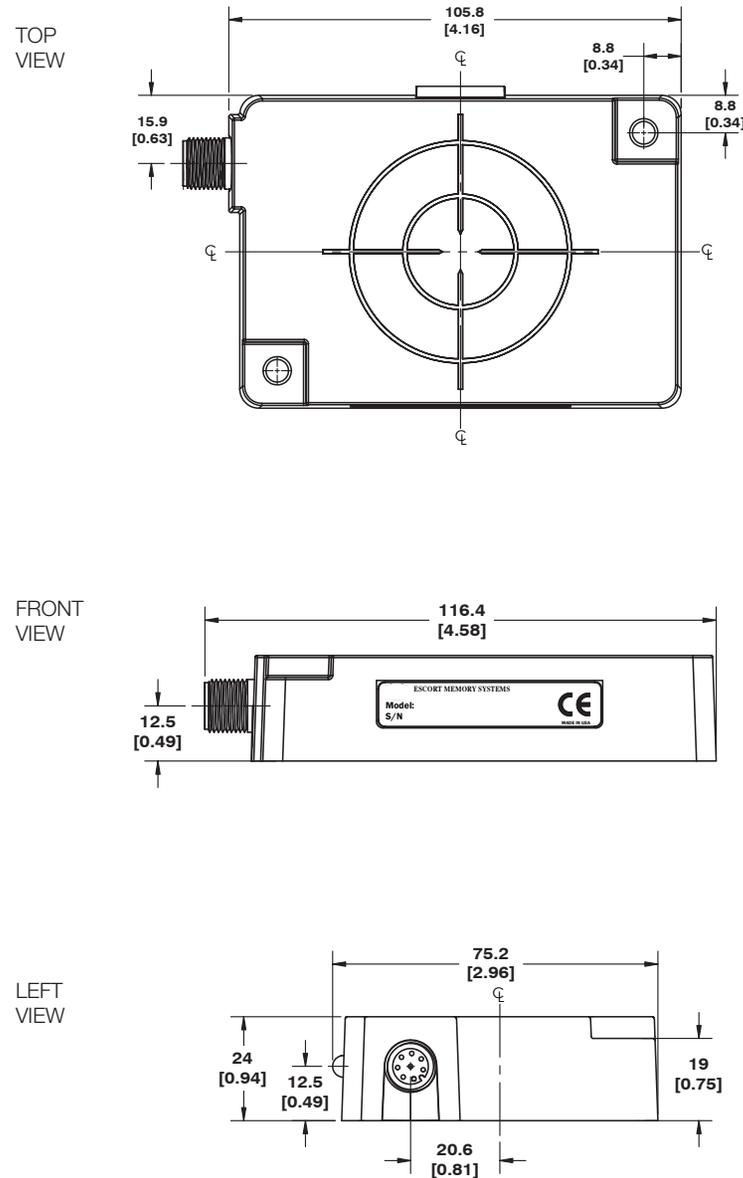


Figure 1: Controller Dimensions

## Interface Connector - Pinout

The controller has one 5-pin, male M12 interface connector.

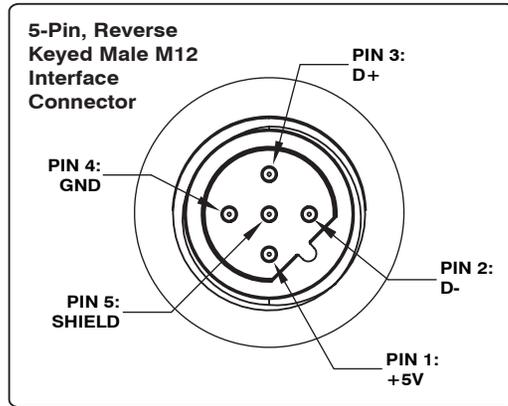


Figure 2: Interface Connector - Pinout

## Installation Guidelines

- Do not recess the BIS M-411 in metal and allow 60 mm (2.5 inches) clearance from metallic objects around the sides of the BIS M-411.
- Avoid mounting the RFID controller near sources of EMI (electro-magnetic interference) or near devices that generate high ESD (electro-static discharge) levels.
- If electrical interference is encountered (as indicated by a significant reduction in read/write performance), relocate the controller to an area free from potential sources of interference.
- Route cables away from motors, solenoids, unshielded cables and any wiring that carries high voltage or high current.
- When installing multiple RFID controllers that operate at the same frequency (13.56 MHz), maintain a minimum distance of 20 cm (8 inches) between adjacent RF devices.

## Power Requirements

The controller obtains power directly from the USB bus and requires 500 mA.

## LEDs

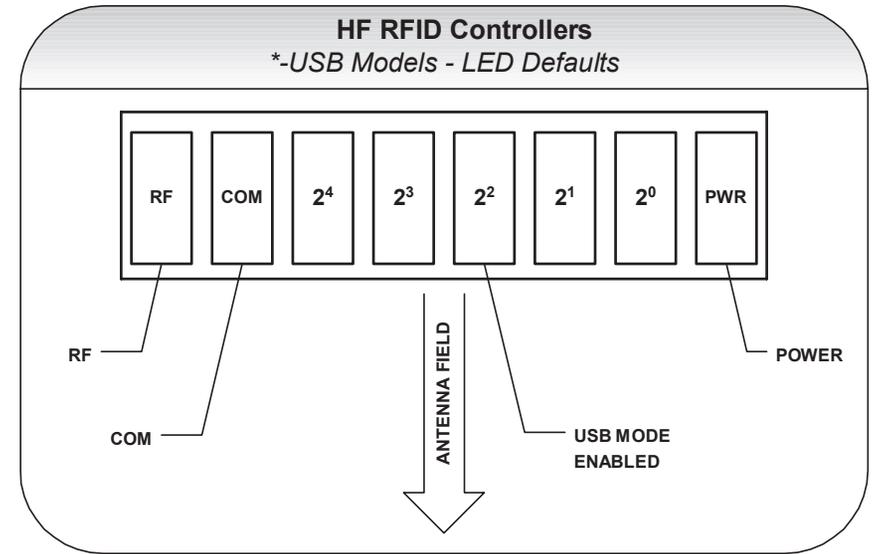


Figure 4: LEDs

## Final Notes

For complete operating instructions for the RFID Controller refer to the:

BIS M-411-Series RFID Controllers - Operator's Manual

Also available online are HF Dashboard™ and C-MacroBuilder™ software utilities.

The HF Dashboard is a Windows-based application that provides users with the ability to control, configure and test their RFID hardware.

C-MacroBuilder is an easy to use GUI-driven utility for Windows. This software utility allows users to build their own macro programs (which are stored internally on and executed directly by RFID Controllers).

When C-MacroBuilder is used in conjunction with the HF Dashboard Utility, users have the ability to design, save and execute custom macros from any supported RFID controller without the need of a host computer to issue routine commands.