

OEM 50

User Manual

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1 Introduction

1.1 Overview

The OEM050 is designed to offer *iCLASS* technology to a wide variety of service providers in applications such as vending machines, biometric readers, card printers, time and attendance terminals, alarm panels etc. A compact mechanical design with the power to drive antennas for read ranges up to 6.0" are the hallmarks of the OEM050. With only a two-wire serial interface and a regulated power supply, an OEM can have the power of iClass at their fingertips.

The OEM050 is designed to be a component in upper level assemblies and can operate with a wide variety of antenna configurations. The I/O are all TTL level logic and this guide provides complete interface specifications. In addition to two antennas designed by HID, the OEM050 includes a comprehensive antenna design guide that allows OEM's to design custom antenna's that perform well with the reader.

1.2 Order Guide

The following is a guide to part number construction for the OEM050 and its auxiliary antenna's.

TBD. Please refer to the HID website for the current version of the *iCLASS* How to Order Guide.

Specifications

1.3 Form Factor

The OEM050 consists of 3 separate PCB's; A reader PCB, a 80mm square antenna PCB with a 50Ω matching network, and a 34mm x 48mm antenna PCB with a 50Ω matching network. Both antenna PCB's are sold separately. Figure 2.1 shows the dimensional outline of the reader PCB.

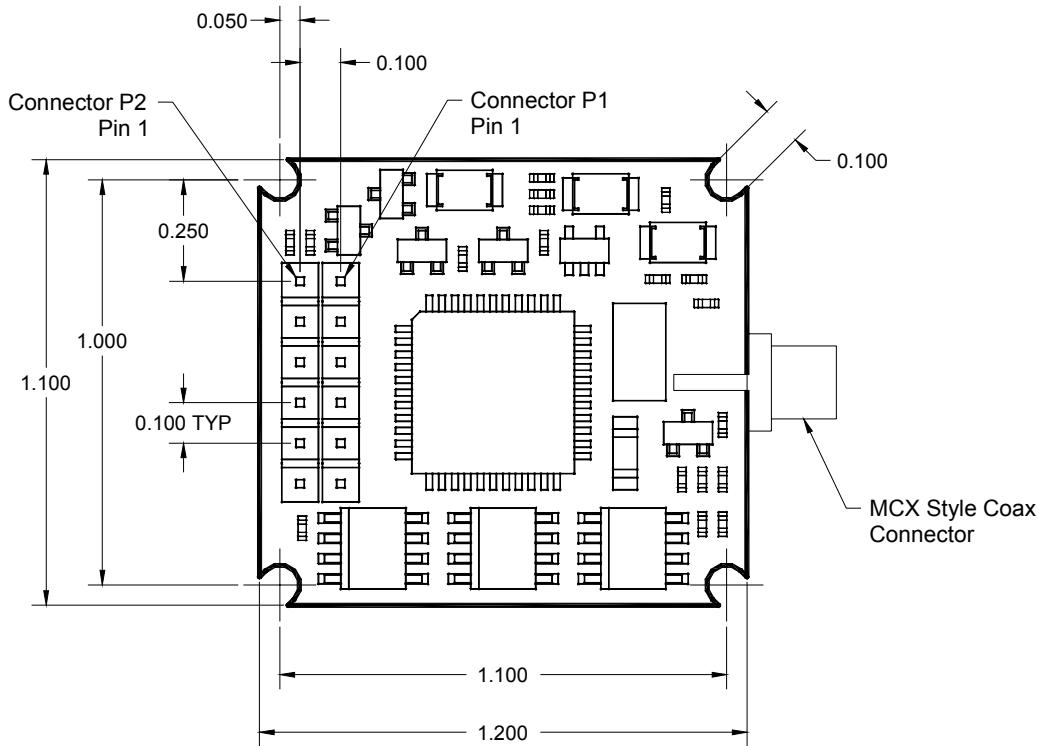


Figure 2.1: Reader PCB Dimensional Outline

The reader PCB has 4 slots located at each corner of the PCB that are sized for a #2-56unc screw. Component placement will allow a maximum diameter of 0.200" for any screw head or standoff used for installation.

1.4 Interfacing

Figure 2.1 shows two 6-pin headers and a MCX style coax connector installed. The OEM050 will not ship with these connectors for flexibility purposes. The holes for the headers are $\&0.035$ and may accept pigtail cabling or header style connectors. The headers may be installed from the top or bottom and right angle or vertical styles may be used but component placement will not allow headers with shrouding or locking mechanisms. For the antenna signal, a MCX coax connector may be mounted from the side of the board, straddling the edge, with the signal pin soldered to a surface mount pad on the top side and two of the four ground pins soldered to surface mount pads on the bottom side. Antennas may also be connected to the module using a twisted pair of wires, provided the wire length is not greater than 3.0".

I/O Functionality			
Connector	Pin #	Pin Name	Function
P1	1	Exc Supply	Separate supply for the antenna exciter. Includes on-board filtering.
P1	2	Exc Return	Return for the exciter supply.

I/O Functionality			
Connector	Pin #	Pin Name	Function
P1	3	Serial Transmit	Transmit pin for serial communications. May connect to an off-board RS-232 driver or directly to a uprocessor UART.
P1	4	Serial Receive	Receive pin for serial communications. May connect to an off-board RS-232 driver or directly to a uprocessor UART.
P1	5	+5VDC Return	Return for the +5VDC supply.
P1	6	+5VDC	Separate supply for uprocessor and other 5V circuitry.
P2	1	Open Output	Extra output pin that may be controlled by the OEM through the serial communication interface.
P2	2	Ground	Extra return pin for any I/O that are wired to a remote location.
P2	3	Wiegand Data1	Wiegand data output.
P2	4	Wiegand Data0	Wiegand data output.
P2	5	Power On Reset	Input that allows the OEM to control when the processor resets upon power-up.
P2	6	Hold	Input that allows the OEM to put the reader in Hold mode.

I/O Electrical Specifications			
Pin Name	Nominal Values		Notes
	Voltage	Current	
Exc Supply	+5VDC	47mADC	Values listed for the current are based on 100% duty cycling of the exciter. Normal operating conditions for the exciter is 10% duty cycling. $V_{MAX} = +12VDC$ $V_{MIN} = +2.7VDC$
	+8VDC	75mADC	
	+12VDC	105mADC	
Serial Transmit			Refer to Microchip PIC18LF452 datasheet
Serial Receive			Refer to Microchip PIC18LF452 datasheet
+5VDC	+5VDC	46mADC	$V_{MAX} = +5.25VDC$ $V_{MIN} = +2.7VDC$
Open Output			Refer to Microchip PIC18LF452 datasheet
Wiegand Data1			Refer to Microchip PIC18LF452 datasheet
Wiegand Data0			Refer to Microchip PIC18LF452 datasheet

I/O Electrical Specifications			
Pin Name	Nominal Values		Notes
	Voltage	Current	
Power On Reset			The minimum VDD rise time for the processor is 0.050V/ms. In the event that VDD ramps up at a slower rate a delay circuit has been provided based on the Microchip application note that consists of a diode, capacitor, and 2 resistors. Due to limitations in space and component size this protection may prove to be inadequate in some applications. For this reason the MCLR pin of the processor is made available as an input to the module so that the OEM may control the power-on reset.
Hold			Refer to Microchip PIC18LF452 datasheet