# PICkit™ SERIAL I$^2$C™ DEMO BOARD USER'S GUIDE

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BOARD USER'S GUIDE

# Preface

## NOTICE TO CUSTOMERS

All documentation becomes dated, and this manual is no exception. Microchip tools and documentation are constantly evolving to meet customer needs, so some actual dialogs and/or tool descriptions may differ from those in this document. Please refer to our web site (www.microchip.com) to obtain the latest documentation available.

Documents are identified with a "DS" number. This number is located on the bottom of each page, in front of the page number. The numbering convention for the DS number is "DSXXXXXA", where "XXXXX" is th e document number and "A" is the revision level of the document.

For the most up-to-date information on development tools, see the MPLAB $^®$ IDE on-line help. Select the Help menu, and then Topics to open a list of available on-line help files.

## INTRODUCTION

This chapter contains general information that will be useful to know before using the PICkit™ Serial I$^2$C™ Demo Board. Items discussed in this chapter include:

- Document Layout
- Conventions Used in this Guide
- Recommended Reading
- The Microchip Web Site
- Customer Support
- Document Revision History

## DOCUMENT LAYOUT

This document describes how to use the PICkit™ Serial I$^2$C™ Demo Board as a development tool. The manual layout is as follows:

- Chapter 1. "Product Overview" – Important information about the PICkit™ Serial I$^2$C™ Demo Board.
- Chapter 2. "Installation and Operation" – Includes instructions on how to use the PICkit™ Serial I$^2$C™ Demo Board.
- Appendix A. "Schematic and Layouts" – Shows the schematic and layout diagrams for the PICkit™ Serial I$^2$C™ Demo Board.
- Appendix B. "Bill Of Materials (BOM)" – Lists the parts used to build the PICkit™ Serial I$^2$C™ Demo Board.

# PICkit™ Serial I $^2$C™ Demo Board User's Guide

## CONVENTIONS USED IN THIS GUIDE

This manual uses the following documentation conventions:

### DOCUMENTATION CONVENTIONS

| Description | Represents | Examples |
|---|---|---|
| Arial font: | | |
| Italic characters | Referenced books | *MPLAB® IDE User's Guide* |
| | Emphasized text | ...is the *only* compiler... |
| Initial caps | A window | the Output window |
| | A dialog | the Settings dialog |
| | A menu selection | select Enable Programmer |
| Quotes | A field name in a window or dialog | "Save project before build" |
| Underlined, italic text with right angle bracket | A menu path | *File>Save* |
| Bold characters | A dialog button | Click OK |
| | A tab | Click the Power tab |
| N'Rnnnn | A number in verilog format, where N is the total number of digits, R is the radix and n is a digit. | 4'b0010, 2'hF1 |
| Text in angle brackets < > | A key on the keyboard | Press <Enter>, <F1> |
| Courier New font: | | |
| Plain Courier New | Sample source code | `#define START` |
| | Filenames | `autoexec.bat` |
| | File paths | `c:\mcc18\h` |
| | Keywords | `_asm, _endasm, static` |
| | Command-line options | `-Opa+, -Opa-` |
| | Bit values | `0, 1` |
| | Constants | `0xFF, 'A'` |
| Italic Courier New | A variable argument | `file`.o, where `file` can be any valid filename |
| Square brackets [ ] | Optional arguments | `mcc18 [options] file [options]` |
| Curly brackets and pipe character: { \| } | Choice of mutually exclusive arguments; an OR selection | `errorlevel {0\|1}` |
| Ellipses... | Replaces repeated text | `var_name [, var_name...]` |
| | Represents code supplied by user | `void main (void)`<br>`{ ...`<br>`}` |

# Chapter 1. Product Overview

## 1.1 INTRODUCTION

The PICkit™ Serial I$^2$C™ Demo Board demonstrates I$^2$C serial communications and operation of the following devices:

- 24LC02B - 2Kbit Serial EEPROM
- MCP9801 - High-Accuracy Temperature Sensor
- MCP3221 - Low-Power 12-Bit A/D Converter
- TC1321 - 10-Bit Digital-to-Analog Converter
- MCP23008 - 8-Bit I/O Expander

The PICkit™ Serial I$^2$C™ Demo Board was designed to easily connect to the PICkit Serial Analyzer (DV164122). The PICkit Serial Analyzer provides the I$^2$C master mode serial communications and power. The PICkit™ Serial I$^2$C™ Demo Board devices all operate in the I$^2$C slave mode. The PICkit™ Serial I$^2$C™ Demo Board can easily be connected to virtually any demo or development board by connecting the communications lines to connector P1.

## 1.2 HIGHLIGHTS

This chapter discusses:

- I$^2$C Serial Communications
- I$^2$C Demo Board Operation
- I$^2$C Demo Board Devices
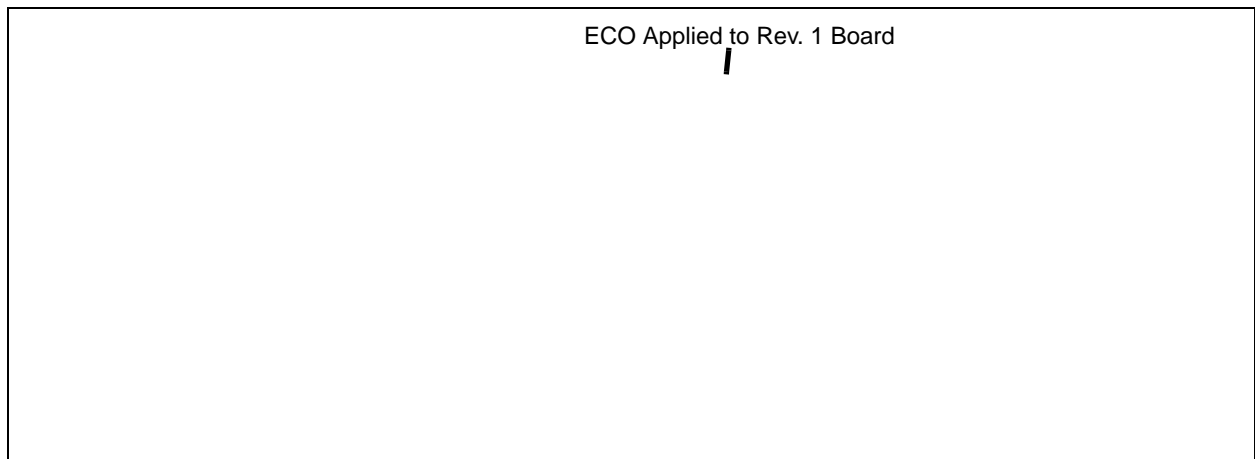


ECO Applied to Rev. 1 Board

**FIGURE 1-1:** *PICkit™ Serial I$^2$C™ Demo Board.*

Note: Figure 1-1 shows the Rev. 1 board with an ECO (Engineering Change Notice) applied to it. The Rev. 1 board with ECO and the Rev. 2 board are electrically the same. Refer to Appendix A. "Schematic and Layouts" for Rev. 2 schematics and board layouts.